As I started outlining my ideas for this statement, I realized that it has been almost fifteen years since I held my first teaching position, as a calculus teaching assistant for the M.I.T. *MITES* Program the summer of my sophomore year in college. During this time, I have taught college seniors and students as young as fifth graders. I have taught students who have been hand-picked from a national applicant pool and students whose work was labeled as below-grade level. I have held academic administrative positions, and I have developed curriculum. I have advised students, and I have led student research groups. With this spectrum of experiences under my belt, I am in the fortunate position to contribute immediately in any and all of these capacities when I arrive on campus.

My mathematical research lies in number theory. As such, I am prepared to teach undergraduate number theory, discrete mathematics and abstract algebra. In fact, I have already taught the former and the latter to advanced high school students. I am also interested in developing courses or leading seminars on cryptography (which I have also taught to advanced high school students) and on the mathematics behind cultural phenomena such as Sudoku, poker and Rubik's cube. Between my experience as a high school teacher and my instructorship here at the University of South Carolina, I can also teach any introductory level mathematics course through differential equations, some carefully selected upper-level mathematics courses, as well as any mathematical sequence designed for non-science majors.

I am also deeply interested in mathematics education. I hold a masters degree in mathematics teaching and curriculum and was certified to teach middle and upper school mathematics and science (Massachusetts 1997-2002). I spent six years in the classroom, two at the intermediate level and four in high school. In addition, I served as interim mathematics department chair at Palmer Trinity School in Miami, Florida, and undertook all the responsibilities therein. I sat on the academic council and on the laptop computer adoption committee. I led department meetings. I wrote the middle school placement test. I wrote the mathematics section of the course guide. I interviewed prospective teaching candidates. Thus, not only am I in a position to teach mathematics courses, but I am also in a position to teach mathematics education courses and support educational programs (both for teachers and administrators) that serve the university and its neighboring community.

Earlier this fall, I was asked to participate in a panel for all first-year graduate students. The panel addressed teaching undergraduates effectively while completing one's graduate responsibilities. While preparing for this discussion, I looked back upon all the mistakes I have made and all the success I have witnessed in the classroom, and I isolated three essential ingredients for a positive instructional environment. In essence, if the teacher sets the right tone for the course, gets the students involved in the learning process, and treats the students fairly and consistently, then in general, the class will flow smoothly. Of course, having a plan is one thing; executing it effectively is a challenge onto itself.

One of the first lessons I learned teaching fifth graders, and I learned it the hard way, is that the first week of a class sets the tone for the entire year. I want my students to realize that I have high (but realistic) expectations for their performance in the course. In general, students will respond positively to the confidence I express in their abilities. However, I also remind them that I have high expectations for my own teaching, and they should as well. I will push them, but they should push me. I will demand everything of myself that I will demand of them. Simply put, I will set the example that I hope my students will emulate.

If students intently pay attention to every single detail in class, then they will probably benefit from the learning process. However, not all students are this driven, and sadly, not all students feel passionately about mathematics. Still, not enjoying a subject is not a reason for dismissing it. Thus the teacher must find a way to get students to *want* to participate during class, independent of their feelings about the material. One simple strategy is to praise the students who participate: to thank them for asking such an insightful question or for providing such a clever solution. I constantly ask my students questions to keep them engaged in the exposition: sometimes about the material on the board, sometimes to refresh my memory of what we covered the week before. The students have to realize that they are the ones who push the lesson forward, not me. I will stand in front of the class waiting for an answer to my question, regardless of how long the awkward silence lasts. And at the very first contribution, I praise that person, a lot. Other ways to incorporate students into the classroom dynamic include calling out common first names (which were memorized early on) and making a lot of eye contact. Once a student participates, he or she is personally invested in that day's lesson, and thus, is more likely to follow where their suggestion will lead the discussion.

Lastly, when I teach I try to be as fair and as consistent as I can be. As I mentioned previously, I expect as much from myself as I expect from my students. I try to get all of the students to contribute to the flow of the class. If I have written a rule in the class policies, I enforce it consistently. I grade tests on a page by page basis so that every problem is graded under as similar circumstances as possible. I put as much as I can down in writing, either via emails or the web, so that the students can check that I am doing what I wrote that I was going to do. It is difficult, and it can be a little tedious at times, but I strongly feel that students respond positively knowing that their teacher is fair, the course structure is consistent, and everything that happens occurs as previously described or anticipated.

Having attended and taught at independent private schools, I have experienced academic advising from the student's perspective as well as from the advisor's. In addition, through my summer work at the Governor's School of North Carolina, East Campus ("GSE"), I have mentored student research. With Rob Houck, the lead mathematics instructor, in 2005 we re-wrote the GSE mathematics program with the purpose of encouraging the students to experience first-hand the mathematical research process "in the spirit" of the way mathematicians approach the subject at the highest levels of academia. We used as our models what we knew about research experience for undergraduate programs, and what we have experienced during our graduate studies in mathematics.

The GSE math program centers around four mathematical pillars: prove, solve, share and expand. In essence, the students take proof-based math courses to learn how to write proofs. They are given a research problem to solve or a topic to develop, with proof. Then, they share their results and experience peer review by giving talks and writing up their work. And lastly they expand their body of knowledge by attending talks and reading papers, either by their peers or by guest mathematicians.

We found that, not surprisingly, the students' success at this research process stems from their natural enthusiasm combined with an appropriately-chosen problem, supported by thoughtful advising. In many ways this mirrors the trials and tribulations we all have experienced working on our dissertations. The challenge now becomes finding open mathematical problems that are accessible to advanced high school students (or college underclassman). For example:

Consider the sequence $a_1 = 1$, $a_2 = 11$, $a_3 = 21$, $a_4 = 1112$, $a_5 = 3112$, $a_6 = 211213$, $a_7 = 312213$,... *What can one say about this sequence's behavior?*

Two GSE research groups advised by Rob Houck studied this sequence and developed, with proofs, some very delightful mathematical theory. And at least one of these students has gone on to pursue mathematics as her undergraduate major. That was the purpose we envisioned for the GSE math program, to expose young students to mathematical discovery and hopefully nurture their growth into academic mathematicians.

When I attend regional number theory or MAA or AMS conferences, I constantly seek out problems that could be accessible to young mathematics students. When I previously wrote that I wanted to lead a seminar on the mathematics of Sudoku, part of the reason is that it is ripe with "entry-level" research potential. In addition, although open problems would be ideal for this purpose, I feel that carefully chosen problems that are well understood yet are new to young mathematicians can also stimulate productive research experiences. For these aspiring mathematicians, research is as much about the quest as it is about the discovery. The sooner we can get them actively involved in this process, the better. I am ready to develop such a research program, either within the mathematics department, or in conjunction will local high schools.

It is my goal in life to understand as much mathematics as I reasonably can, while passing as much of my acquired knowledge as possible onto others. Mathematics is such a rich subject area that without a doubt, there is some part of it that is tailor-made for each of us. Either in my classroom or through research, I strive to help others discover exactly which part of mathematics they might call their own.