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Teaching Philosophy Statement

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Through various leadership positions, I've had opportunities to engage with pedagogy and education from multiple perspectives, each of which has taught me something valuable and contributed to my overall philosophy of teaching. Organizing our department's graduate student teaching group taught me about the importance of engaging with a community of educators. Participation in the Rutgers Academy for the Scholarship of Teaching and Learning has taught me the importance of interdisciplinary collaboration. Coordinating programming for the Rutgers Teaching Assistant Project has taught me how to gather information about pedagogy, put it into practice, and disseminate the information to others. Participation in the Pre-Doctoral Leadership Development Academy has taught me about the complexities of higher education and has allowed me to understand my role in this complex system better. Participation in the Proof Comprehension Research Group has taught me how to find resources in education research, how to understand them in context, and how to bring that knowledge into my practice as an educator.

Recently, I've had a unique opportunity to bring together everything I've learned from these positions and my time as an instructor while making a difference in my department. Last year, our department initiated reform efforts for our precalculus to calculus 2 (P2C2) courses, and I've been a part of the committee since its formation. Initially, I helped with early efforts, such as initiating and coordinating instructor focus groups and investigating relevant literature such as publications from the Progress through Calculus and P2C2 studies from the Mathematical Association of America (MAA).

As the project has evolved, so has my role. Currently, I am the co-chair of the Preparation for Calculus sub-committee, which is designing and implementing a new support class for calculus students who need additional preparation. The course runs in the second half of the semester, and students whom we identify by the first midterm as needing extra precalculus help are encouraged to switch into this class. Informally, this course was initially referred to as a "drop-down" course. Early in the process, I urged that we not use that term because it gives the impression that students who switch have already failed in some way. Beyond discouraging growth mindset, this deficit perspective, I believe, would be detrimental to the course as it would discourage students from switching, especially those from underrepresented groups. Because we backward designed the course from what students will need in calculus, the official title of the course is "Preparation for Calculus." As co-chair, I've been pushing the goals, values, and purpose of the course as the face of the design, and as part of that, I continue to work to remove the term "drop-down" from the vocabulary we use to describe it.

In general, I believe that vocabulary is an essential part of creating inclusive spaces, and as such, I have made small changes in my language choices in and around my classrooms to create a more inclusive environment. For example, I've begun starting my semesters with a survey to get to know students, including asking them what their preferred name is and what pronouns they use. I make every effort to learn and remember these, as a small gesture to show students that they are a vital part of my class and that their identity is valuable. In the same pursuit of fostering a culture of inclusion and belonging in my class, I make careful language choices, including body language, to encourage students to feel comfortable with the messiness of the learning process. For example, when guiding group work, I will sit or kneel with the group that I am talking to, rather than standing over them. I'll ask the group how we are doing, rather than directing the question at them, asking what they have accomplished so far and whether they have any questions. By using the word "we" and physically getting on their level, I am signaling to them that I am an ally in this process. I've found that this helps students feel comfortable voicing their thoughts, even if they haven't made progress on the problem or have a clear question, which allows me to direct them as needed. It also helps students feel comfortable approaching me with a question or general confusion.

Students evaluations from my fall 2018 class on Introduction to Real Analysis (for which I was a Teaching Assistant) reflect this comfort, as shown in some example quotes below:

> "I was never afraid to ask her a question or reach out for help. She made this course very comfortable, which is extremely difficult to do."
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> "Chloe is a really great TA and is very good at guiding students to the right answer. I feel really comfortable asking her anything questions about the material, which is extremely valuable considering real analysis is very intimidating. "
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> "She is really nice and is always willing to help, which makes it easier to talk to her"

Another meaningful way that I use vocabulary in my classes is in choosing words that are growth-mindset-forward. I avoid the use of the word "ability" and instead talk about "preparation" and "effort." In the pursuit of fostering a growth mindset in my students, I will also have discussions about the vital role of confusion in the learning process. Additionally, we discuss each course component's purpose to put it all in perspective and help them get the most out of each piece. For example, we talk about the fact that it is okay to lose points on their homework and that it has minimal impact on their grades because homework is the chance to practice and get feedback before their exams. I also include midterm exam corrections and other assignment revisions to encourage them to learn from their mistakes before the final exam. Students noticed this encouragement, and noted it in their evaluations, as the below example quotes from my classes this past summer (for which I was the instructor of record) show:

> "I stayed after with her after class and she encouraged me regarding my test anxiety and gave me tips on how to prepare for exams, and told me not to doubt my knowledge and the work that I've put it. It was extremely encouraging and it genuinely made me feel better about how I was approaching this class despite it's difficulty. "- Calculus 2 student
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> "Chloe is extremely encouraging which helped me become more confident in my work and not second guess myself as much." - Introduction to Real Analysis student

These discussions about confusion and the course components are especially crucial for flipped classrooms. In general, I tend to teach my courses using the principles of a flipped classroom, and every class I have taught as instructor of record has been a flip that I designed. There are numerous reasons I prefer this model, including ample evidence for its effectiveness in helping students to learn the material. However, another purpose for flipping my classrooms, especially for classes at the freshman level, is that it allows students to take control of their learning. This requires clear communication with students about the course expectations. I have worked to create a list of clear and detailed learning goals for each course day, detailed lists of what students are expected to know and be able to do on an exam, and suggestions for how to study. In general, students have enjoyed the flipped structure of the courses and appreciated the clearly communicated expectations, as evidenced by example quotes from courses which I flipped as the instructor of record:

> "She really pushed us to think for ourselves and to work through problems no matter how challenging or foreign they were at first. I think she prepared us well from the get go as for what to expect from each and every class by giving us intro and review assignments as well as introducing us to LaTEX." - Introduction to Mathematical Reasoning student, Summer 2017
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> "I really enjoyed the active learning environment. I had trepidation prior to the course, as I couldn't imagine a math class in this format. I was, however, proven wrong. I found that the active learning environment, and the overall structure of no lecturing, led to an open environment where students learned fundamentals on their own, but solidified the topics with the help of other students and the instructor. This led to me having a very easy time taking in the course materials,

much easier than I have in any other math class prior to this. The environment lended itself naturally to group work, which was also quite important. I also enjoyed the work done with LaTeX in this course. I find myself enjoying the newfound ability to be able to type mathematical documents easily." - Introduction to Mathematical Reasoning student, Summer 2017

"I liked that not all of the practice and application happened outside of class. It benefitted me greatly to have the instructor helping me work out problems before I had to do them on my own. "- Calculus 2 student, Summer 2019

Although I am very proud of everything I have learned about teaching, education, and learning, and the innovations it has allowed me to bring into my classroom, there is so much I still want to learn and try. I believe that in this position, I can bring the knowledge and experience I have gained to the benefit of the department while also continuing to grow and learn.