Maria van der Walt | Teaching Statement

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Teaching Philosophy

I firmly believe that being a Mathematics teacher is about more than simply teaching students Calculus and Algebra. It is about teaching them how to reason logically and approach problems systematically and methodically, not only when tackling Mathematics exercises, but when encountering any problems in real-life situations. It is a privilege for me to be able to contribute to a student's development in this way.

With this in mind, my objectives as a Mathematics educator are:

- to teach logical reasoning and foster critical thinking;
- to model expert problem solving;
- to guide students to understanding their own thought processes;
- to prepare students to be knowledgeable adults;
- to inspire students to enjoy Mathematics.

These goals have certain implications for the way in which I approach interactions (classroom and individual) with students:

- I prepare my lectures thoroughly so that I can explain course material as clearly and systematically as possible.
- When solving problems in class meetings, I am conscious of modeling my own thought processes in problem solving, and not merely showing my students the correct solutions.
- During the course of a semester, I emphasize to students how different mathematical concepts they have learned hold together and build on one another. I want them to become well-rounded mathematicians.
- When applicable, I show students how Mathematics is applied in real-life examples.
- I believe in assigning a few daily homework problems (that are not necessarily graded) that should help students practice and capture the concepts and skills they have learned in class. Apart from these problems, I also like to assign weekly or bi-weekly graded homework assignments that are a bit more challenging and problem-solving-oriented than the daily routine exercises, and are designed to give students more insight into practical or theoretical aspects of the course material.
- When students visit me in office hours, I lead them and teach them to arrive at answers by themselves through logical reasoning, and not simply give them the correct approach.
- During office hours, I want to be approachable and open to students and put them at ease (from my own experience, I know it can be quite daunting to talk to your mathematics instructors when you're struggling with a concept!).

I am passionate about Mathematics and teaching Mathematics, and it is my hope that I can inspire my students to learn and love it too.

Teaching Experience

My first taste of teaching at university level was during the years that I served as teaching assistant at Stellenbosch University in South Africa. Over the course of three and a half years, I tutored numerous courses in Mathematics, Applied Mathematics and Operations Research – this generally involved a three-hour tutorial every week where I could help students on an individual basis. This helped me to develop the skill to explain mathematical concepts in different ways, depending on a student's background and approach. During this time, I discovered that I could really make a difference in the lives of students by helping them understand Mathematics and that it's something I'm good at.

In this time, I also got the opportunity to manage extra Mathematics tutorials for students in the biological sciences. My duties involved preparing supplementary lectures for struggling students that were taught by me and a team of TA's.

During the last semester of my Master's studies at Stellenbosch University, I was appointed Temporary Lecturer for Calculus I (Single-Variable Calculus). This was my first experience as instructor of record, and I discovered that there are few things as exhilarating as teaching a class well! You have to work hard to capture and motivate your students and to keep them engaged and to connect with each one of them, but it is greatly rewarding.

During my PhD studies at the University of Missouri-St. Louis, I served as TA again. I was fortunate to have the opportunity to be instructor of record for a few courses (including Trigonometry and Basic Probability and Statistics). Here I learned how to relate to American students and what they expect in classroom and office hour interactions. I also got experience with different teaching technologies, specifically Pearson's MyMathLab.com and CENGAGE Learning, which were used for homework and testing purposes.

As an Assistant Professor at Vanderbilt University, I have taught Differential Equations, Linear Algebra and Single-Variable Calculus. Not being a TA anymore, I have had autonomy to design these courses, including course content and assessment methods. It has been very exciting for me to develop my own style and to experiment with different approaches in this regard.

In my experience so far, I have particularly enjoyed teaching Applied Mathematics courses or Mathematics courses designed for engineers and Applied Mathematics majors. With the rapid advancement of technology and data sciences in recent years, the STEM fields are booming industries and exciting areas to work in. As a Mathematics teacher in these courses, I have a unique opportunity to teach and model the logical and critical thinking that will prepare students for the industry and to inspire them to solve real-world problems using Mathematics. I am really excited to continue teaching Mathematics and to grow and improve my teaching skills as I do.