

# Teaching Statement

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The debate of how information is best conveyed to students has been the foundation of teaching reform movements for at least the past 50 years. While I was a teaching assistant at the University of Illinois, I had a unique opportunity to develop a teaching philosophy based on intellectual discussion of teaching methodologies and practical experience of applying these techniques in the classroom. The core philosophy about teaching that I have developed is that effective teaching comes from responding to the needs of the students and focusing on an individual instructor's strengths. I feel I was able to successfully apply these principles at Illinois, and now at the University of Waterloo.

The University of Illinois has always played a large part in the debate over teaching reform in mathematics. Consequently, during my time at the University of Illinois, I had a unique opportunity to teach courses using various methodologies, ranging from traditional lecture style to computer based learning and small group learning. This experience allowed me to become familiar with a wide variety of teaching techniques that I can employ in the classroom. Furthermore, by teaching the same course using various techniques enabled me to draw my own conclusions about the specific strengths and weaknesses of each technique, and how they can be best utilized in the classroom. I have discovered that no one teaching style works perfectly for all students, and I try to keep this in mind when structuring a course. I believe the way a course is taught should reflect the needs of the students, not just the pedagogical beliefs of the instructor.

Another fundamental issue that effects the ability of a teacher to have meaningful communication with his/her students is successful conveyance of interest in the students' welfare. A student does not necessarily attach significance to how you feel about them individually, but they do have a strong desire to know that you have a vested interest in teaching them. When students perceive that the instructor does not care, it is easy for them to give up on material when it gets even slightly difficult, blaming it on poor instruction rather than putting in the extra work. Keeping the students motivated and understanding their personal perspective is paramount when trying to run a successful course.

A critical aspect of this is presenting the material in a manner in which the students can comprehend its relevance. For instance, when

teaching a course like Math 118 “Numeracy”, which is designed for non-science majors, it is important to present the material in a way that establishes a link between the mathematics learned in the classroom and their everyday life. In contrast, when teaching a higher level course such as a second-year Calculus course for engineers, it is important for them to see how the mathematics applies to their field of study and forms a foundation for the course work to come.

By teaching courses using various teaching methodologies, I have also had the opportunity to determine what my strengths and weaknesses are as an instructor. I believe that this is a critical consideration that is often overlooked in the debate between so-called “traditional” and “reform” teaching styles. In addition to understanding the students’ needs and how they learn material, it is imperative for an instructor to utilize teaching techniques which match their individual strengths. Relying solely on a teaching style which goes against the character of an individual instructor will result in poor classroom chemistry and does the students a great disservice. As such, I believe it is important to constantly be evaluating how the class is progressing. This requires keeping the students involved so it is possible to determine whether the material is being successfully conveyed or if there is a breakdown in communication.

As a member of a larger department, one has the opportunity to see the disparity that arises in classroom performance from those teachers that honestly care about helping the students learn and those who feel that teaching is merely a task to be performed. This is something I have experienced both at Illinois and at Waterloo. As such, I have always striven to incorporate this aspect into my teaching, and above all other things, I believe it has helped me the most to succeed in the classroom.

The following is a list of courses that I taught at the University of Waterloo.

- Math 135, Honours Algebra, Fall '01, Fall '02
- C & O ?, Introduction to Hyperelliptic Curves in Cryptography, Spring '02.

Below is a list of courses I taught at the University of Illinois. They are grouped by teaching style for convenience.

**Lecture (Traditional) Style:**

- Math 118 Numeracy, Summer '97

- Math 120 Calculus I, Summer '98
- Math 130 Calculus II, Fall '95
- Math 134 Business Calculus, Spring '96

*Calculus and Mathematica:*

- Math 130 Calculus II, Spring '97
- Math 135 Calculus I.5, Fall '96

**Merit Workshop:**

- Math 120 Calculus I, Fall '97 & '98
- Math 130 Calculus II, Spring '98