Teaching Statement

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I think mathematics is both a powerful language to describe the world and an exciting exercise in imagination, creativity and critical thinking. Hence, helping students develop mathematical skills and the confidence in doing or using mathematics is for me both important and fulfilling.

An aspect of mathematics I try to emphasis while teaching is the interconnectedness between different topics and branches. I often end a class or recitation by indicating the relationship of the material covered with things they will learn in the future, and after introducing a new concept or theorem I often demonstrate its relation to topics they learned earlier. For example, when I was the teaching assistant of "Linear Algebra for Engineers" I tried to emphasize in recitations how a few key ideas they encountered early on in the course like the relationship between linear transformations and matrices, and the change-of-coordinate formula, were generalized and developed in the latter parts of the course.

One thing I find particularly helpful in engaging students from non-math background is to incorporate examples of the applications of mathematics. When I was the teaching assistant of the course "Differential Equations", after covering the relevant materials in the recitation sessions, I often presented an application in science or engineering. Topics covered including the concept of entropy, resonance and the LC circuit, perturbation method and the perihelion precession of Mercury (following Einstein's 1915 paper), and dispersion and electronic music. Many students said that it increased their interest in recitation sections as well as the course in general.

I consider examples and problem solving to be a crucial part of learning mathematics, and I always try my best to produce examples and problems that are interesting, of appropriate difficulty, and cover important concepts and techniques. Some of the problems I have written can be found on my website: `http://wuchenxi.github.io`. Furthermore, I often encourage students to work out more challenging problems in groups in classes or recitations and then present their solutions, which I find to be quite effective and efficient.

While at Cornell I also participated in several outreach activities: I volunteered in the math club of Ithaca High school for a semester in 2012, and also 2 sections of the "Math Explorer's Club" in 2015. Both were exciting experiences in which I gained experience in talking about mathematics in a more informal and hands-on approach.

I hope that a future career in academia will give me a chance to contribute to mathematical education, to improve my teaching skills with more experiences, and to positively affect the life of others by sharing the beauty and excitement of mathematics with them.