Teaching Statement

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Every teacher was a student and some students will become teachers. Not until I became a teaching assistant and later an instructor of a course did I truly realize that teaching and learning are just counterparts of education. So it is essential to understand both parts during this process. Great teachers usually divide teaching into the following three concrete sub-roles.

1. A motivator that inspires students. William Arthur Ward said "*The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.*" A great teacher could turn the process of learning from passive receiving into active pursuing.
2. A trainer that sets up systematical plans and helps students accomplish. Math is accumulative, which is similar to building up muscles. Systematical plan of training could save time and result in better achievement. Thus, it is the role of the teacher to provide study plans, lecture notes and corresponding exercises for the students.
3. A consultant for students after class. A doctor is needed when sickness happens. No one is more suitable than the instructor to analyze and solve students' problems, both concrete in exercises and general in study plans.

As my teaching experience increases, I also notice that a lot of details in teaching also contain counterparts. They behave as the two sides of the balance, though some pairs seem to be contradictory to each other. Compatibility of those pairs are the key to teaching.

I. Group and Individuals.

Lectures are given for all the students. A suitable pace should allow the majority to follow. Group discussions on exercises are always recommended, provided that each individual could contribute, since it could reduce the difficulty and also increase each member's sense of accomplishment and identity. On the other hand, individuals have different problems, which is why the office hours for meeting individuals are necessary. After every midterm test, I require students to pick their test individually from my office so that discussions and analysis will follow individually.

II. Limited Time and Scheduled Materials.

Each lecture has limited time, which actually prevents students from getting tired and lost in the classroom. Thus, I arrange lecture notes carefully according to the time in order to make each lecture relatively integrated and also not hard to understand based on previous ones. Meanwhile, to save time, I always give handouts containing formulas, theorems and examples. For instance, some application problems in Calculus are very long, which is time-comsuming if rewritting them dowm completely. Such handouts, on the other hand, also provide me an opportunity to show the problem solving procedure. After class, notes are available for students to download, in order to prevent them from becoming "copiers". On the other hand, in stead of all the details, only key structures are provided in these notes, for maintaining the attandence and inciting thinking.

III. Abstract Theories and Concrete Examples.

To students, formulas and theorems in math are abstract, especially in higher level courses. Suitable examples can explain almost everything by visualizing the abstract theories. In my lectures, examples follow after every formulae and theorem. Moreover, classical examples usually appear multiple times, with or without slight modification, which is to help student understand, review, and memorize the materials. On the other hand, when reviewing for midterms and final exams, only abstract definitions, formulas and theorems are recalled to make a clear structure of the materials and also to emphasize the key points.

It is very fortunate that I have touched many different courses during my TA and teaching at Tulane University, where I graduated with my PhD diploma. For TA assignments, not only was I assigned for all Calculus I, II and III courses, but also for higher levels such as Experimental Mathematics, Combinatorics and, in particular, three times for Real Analysis. On the other hand, my teaching experience involves both various paces (regular pace for Calculus I, slower in Long Calculus II and faster in Consolidated Calculus which covers both Calculus I and II) and different time periods (Fall, Spring and Summer semesters). Meanwhile, substitution for instructors and colleagues is very common. Besides Calculus III, Real Analysis and Linear Algebra, I also have substitute to give lectures for a graduate level course Mathematical Physics for a week in Fall 2015.

Admittedly, I am far away from being a great teacher, but thank to all the great teachers I have met, for the clear path they have shown. As an old Chinese saying, both teacher and student could learn and benefit from the process of teaching. Some talks I attended show that a good research project can be inspired by students. Teaching is not alone, as learning being its counterpart, so is the pair of teachers and students. Every time when I enter the classroom for teaching, I knew we will end up with new ideas. I hope to learn everyday from my students during my teaching.

APPENDIX: TEACHING EXPERIENCE

- **Instructor**
  Tulane University:

Spring	2016	Long Calculus II
Fall	2015	Consolidated Calculus
Spring	2015	Long Calculus I
Summer	2014	Long Calculus II

- **Teaching Assistant**
  Tulane University:

Fall	2014	Real Analysis I
Spring	2014	Combinatorics
Spring	2013	Real Analysis I, Calculus II
Fall	2012	Calculus III, Experimental Mathematics
Spring	2012	Real Analysis I
Fall	2011	Calculus I

  Beijing Institute of Technology:(For Special Joint Class with University of Central Lancashire, U. K., completely in English)

Spring	2011	Calculus for Engineering II
Fall	2010	Calculus for Engineering I
Spring	2010	Calculus for Engineering II
Fall	2009	Calculus for Engineering I