

Teaching Statement

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One of the most heartwarming moments as a teacher is seeing my students finally grasp a mathematical concept after a long struggle. It seems to me that the learning process of mathematics is similar to the eating process of foods; chew, swallow, and then digest. However, it does not go straightforwardly but rather spirally as students need to put their own interpretations on each concept and keep correcting and upgrading it to build up the whole structure of their understanding. I have tried to guide students to achieve their goals in this process and have developed my teaching philosophy along with wide teaching experiences of more than eight years, ranging from College Algebra to graduate level Homology Theory. As a result I have received numerous positive feedbacks from my students in the course evaluations. I would summarize my teaching style into two aspects: careful preparation for classes and waiting for students.

Firstly, I **prepare for my lectures very carefully** because I believe that knowing a subject is not enough to teach it well and that teaching is more than mere conveying of knowledge. Motivational examples need to be arranged in appropriate places based on the level of students and the level of difficulty of the materials. We would expect a better outcome when students see why they need to learn a certain concept. When I introduce a new topic, I divide it into easy-to-chew pieces and show typical examples for each of those. After I explain an example or two, I usually ask students to try the next one on the site. I believe that students learn best by doing, rather than listening and watching. It also gives me a chance to check how well students follow me. After this piecewise activity, I show a couple of comprehensive examples to summarize and assemble pieces together. All these examples are chosen carefully and arranged appropriately in the flow of the lecture. At the end I often briefly show my students how the current concept is connected to another topic that we will go over later. It gives students a motivation for later study and even deepen current level of understanding. While doing this, what I ask to myself is not to be too much enthusiastic on it though. I mention the connection only briefly to avoid unnecessary confusions.

The second aspect which may characterize my teaching style is **being patient and waiting for students**. This is just because it is students themselves who chew, swallow, and digest mathematics. As a teacher I cut materials into pieces and choose a better way to cook it for students. Afterward it is now students' turn to really absorb it. A small but important tactic for being patient is counting five in my mind after I say 'any questions?', 'any idea?', 'what is next?' etc. Such a waiting is also important to keep my students engaged in the discussions. Single problem may allow many different approaches and which is usually the case in mathematics. When I ask students to try problems during classes, I often see some students choose a way I did not suggest to use or even a wrong way which may lead them to somewhere else. This is the moment I again ask myself to be patient and wait. I usually let them go on their own way unless it costs too much. Students would learn, by doing so, why and how they need to apply a certain method. Giving a nice recipe to students is easier than waiting as a teacher and even looks faster, however the latter is the one I prefer and I

strongly believe that the waiting for students a step ahead eventually leads students to their goals faster. During my office hours students are asked to show their work to me and then we discuss the method together. It is more productive than showing them the standard computations again. When it comes to introductory mathematics courses, I tend to be even more patient because students have weak backgrounds and need extra attentions than upper level courses.

As I stated above, mathematical concepts are better understood by tackling various types of examples rather than listening and watching. In this regard I assign weekly homework in all my classes and have quizzes regularly. I make sure that the assignments and quizzes are graded and returned promptly. From my point of view, grading is not just a quantification of students' work into scores but is a tool to communicate with students. It tells me how well students are following the class and which concepts need to be explained further. Students receive helpful comments and suggestions on how they can arrive at the correct solutions. I have supervised undergraduate and graduate students as graders and teaching assistants to build up better classes.

I have used various technologies. I have used a big screen with a software for multi-section classes. I have also used online homework systems such as WebAssign, MyMathLab, and ALEKS in some courses. These systems provide randomized questions and immediate feedbacks, and which is helpful to keep students around the concepts we currently go over. I have also taught an online class. I met the students regularly once a week during e-lecture and posted the video captures on Blackboard for students who missed the e-lecture or would want to review it.

As a visiting assistant professor and then as a lecturer at the University of Toledo, I have had more than six years of teaching experience. Including the teaching experience at the Indiana University as a graduate student, it is more than eight years. During this time I have had the opportunity to teach both lower and upper level undergraduate courses ranging from College Algebra to Differential Equations and Abstract Algebra for Math majors. Also I have taught graduate courses such as Abstract Algebra and Topic Course on Homology Theory. I have taught various types of Calculus classes and served as a course coordinator for 3 years. I believe that it is one of my strengths as a candidate for this position that I have taught wide range of courses and have learned how to lead students to mathematical concepts in an efficient way based on their different level of understanding and backgrounds.

I would like to mention that I have moved forward to improve my teaching ability and now strongly desire to keep going. I look forward to meeting new students and new challenges in the future for more chances to refine my teaching philosophy.

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