Teaching Statement

I strongly believe that every student should be scientifically literate even if not all students will become scientists. It is also my belief that a student, after completing an introductory physics course, should be able to properly *analyze*, *organize*, and *evaluate* the basic concepts of a particular lesson. My teaching style embraces a multi-component approach to instruction that begins with the premise that deliberate practice of scientific concepts is paramount. The second component of my teaching strategy focuses on the implementation of dynamic, real-time modes of assessment. Lastly, I enthusiastically support and will seek to create a classroom environment that allows for discussion where the instructor engages students with questions that lead them to more questions and answers. I believe that this approach provides the basis for high expectations from all students, regardless of their discipline.

The first component of my teaching philosophy deals with the repeated exposure to deliberate practice of concepts. Scientific problem-solving skills, particularly in physics courses, are best developed through sustained practice. One way this can be achieved is by assigning an adequate number of homework assignments. The homework assignments should be selected so that they reinforce the concepts that have already been introduced in the classroom during a lecture. The lecture should be designed so that the students clearly understand what they are expected to know. Important concepts can be emphasized in the classroom by "breaking up" the lecture to reintroduce these concepts in the form of a question. This way the students can begin to comprehend the knowledge that was acquired from suggested reading assignments before coming to class. The idea is that those students who are repeatedly engaged and challenged in and out of the classroom will develop scientifically.

Learning assessment begins with a set of clear rubrics that the students can use to rate their performance in the class. In addition to more traditional modes of assessment such as quizzes and exams, I am an avid supporter of assessment tools which provide instant feedback such as "clickers". With this method, an instructor can easily determine what concepts are most difficult to understand for the majority of the students by analyzing a distribution of the students' answers provided by the software. This method is particularly useful for larger, introductory classes typically found at Research I Universities. For smaller, more advanced classes, methods used can be adjusted depending on the specific learning objectives of the class. This may involve the use of laboratory exercises that require scientific reports or in-class demonstrations where the students would be asked to explain a scientific phenomenon to the class.

Lastly but most importantly, a classroom environment that allows for discussion between the instructor and the students is vital. Based on my experiences as a student and instructor, I have gained an appreciation for thought-provoking questions from students and colleagues that lead me to a deeper level of understanding of a concept. As an instructor for an introductory calculus-based physics course, I found that students feel a sense of comfort with a topic if it can be characterized in a way that is easily identifiable by the students through real-world, personal connections. This is best achieved by engaging the students with leading questions. Oftentimes, the student will make the personal connection for themselves.

As an assistant professor of physics, I plan to use the best teaching practices to ensure that my students are maximizing their learning experience. My teaching style will evolve as I continue to explore the literature and expand my own knowledge on the most effective teaching strategies. I will continually strive to foster a learning environment that espouses high standards, values competency, and encourages creativity.