Statement on Philosophy of Teaching.

I have been a teacher since the nineties when I worked for two consecutive summers as a Math professor in a middle school remedial program. This first experience defined much of my teaching philosophy. Indeed, these middle school students in remedial summer classes had big hopes, conceptual difficulties that they were ashamed of and they were definitively not me 10 years before. From this first experience, I began to see teaching as understanding the difficulties of the students, encouraging them as well as sharing material with them. Today, I see myself as a facilitator for learning and a mentor.
Since I started as an Assistant Professor at Ohio University in 2006, I have taught undergraduate service classes, undergraduate classes for Physics majors, and graduate classes. Another important aspect of my teaching experience is the one-on-one mentoring of students. Over my 10 years at Ohio University, I have mentored and funded research projects for ten OU undergraduate students projects, 3 international visiting Master students and six OU graduate students. In all of those settings I use the same teaching guiding principles.

- **Implement best practices**: National averages show that 1/30 students taking introductory Physics classes will major in Physics, and 1/300 will eventually acquire a PhD in Physics. In that sense it is unrealistic to rely on my own experience as a college student to guide my teaching. A better way is to rely on Physics education products (books, web sites, workshops, etc...) which provide a detailed picture of who my students are and how they learn. As consequence, I perceive it is my duty to keep up to date with best practices recommended by Physics education research, with teaching resources developed by publishers and other providers, and with the collective experience of my peers at Ohio University. For example, I attended a Junior Lab immersion workshop organized by the ALPHA professional association in July 2017. I also took part to a Faculty Learning Community on "Evaluating student evaluations" in the academic year 2016-2017.

- **Mentor students**: Very early in my time as an Assistant Professor at Ohio University, through students feedback, I realized that the feeling that their instructor is personable and supportive is very important for enhancing student's learning, especially for the undergraduates with whom most of the interaction happens in classroom setting. As a result, I make a point to act as a mentor to all my students (from the large service classes to the one-on-one mentoring of PhD students). Most commonly, I send emails with tips and information not directly focused to the physic topics discussed in class, emails which I follow by a short discussion in class. For example, I send the students of my large lecture class an article about how to relieve stress before taking an exam. I send the students of my laboratory class an announcement about summer internship openings at the national laboratory where I conduct my research.

- **Construct classes around level appropriate learning outcomes**: The most difficult tasks for students are to recognize how much they need to learn and to grasp the larger context for that knowledge. In consequence, I believe it is the role of the instructor to determine specific and measurable learning outcomes that can be attained by the average student within the time frame of the class. In this setting especially, I refer to "best practice" recommendations by national professional associations. For example I used the *AAPT Recommendations for the Undergraduate Physics Laboratory Curriculum* (Nov. 2014) to revise the learning outcomes in my classes - more on that in the next session. Once I have identified these learning outcomes, I design class presentations and assignments that support and enforce their acquisition. For example, in my graduate student class, in order to help students reading difficult (professional level) articles, I designed homework exercises that help them out with this task. In my services classes, in order to build problem solving skills, I use problems that go beyond symbol manipulations. In my advanced undergraduate laboratory classes, prelab questions are written to point out students to key concepts of the laboratory.

- **Foster Active-Learning by the students**: One of the tenets of education research is that *"the lecture mode of instruction is simply not an effective vehicle to help most students reach a satisfactory level of understanding"*[1]. Considering the amount of information a full-time student is presented during the course of a week, this finding is not too surprising. Providing an active-learning environment is a way to get students to do/think/talk physics during class instead of listening to someone else talk about physics. The role of the instructor is then mostly to provide thinking points and exercises to direct the student work, as well as to provide immediate feedback on the quality of the student's work. This is a technique used in SCALE-UP [2] a flipped-classroom approach. I was part of the first implementation of this approach at Ohio U. My task was to serve as a TA and also as an observer of the class dynamics. In that semester, on a few days, we did revert to a non-flipped approach, the difference of engagement of the student has totally made me walk away from the traditional teaching method. An example of one such implementation is that in my laboratory classes, I use tutorials (step by step in class exercises) for students to practice new concepts related to error in measurements. In other classes, I inspire myself to use the approach developed by Right Question Institute[3] which aim is to make it possible for all people to learn to ask better questions and participate more effectively in key decisions. While interacting with my PhD students, I make a point to have them develop short and long term goals to help them take responsibility for their research and professional future.

[1] "Five Easy lessons: Strategies for successful physics teaching", R.D. Knight, Addison Wesley, ISBN: 9780805387025

[2] http://scaleup.ncsu.edu

[3] http://rightquestion.org