Statement of Teaching Philosophy

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Philosophy - the dictionary meaning of the word is “The rational investigation of the truths and principles of being, knowledge, or conduct.” When this noun is used with another noun ‘teaching’ it assumes a broad spectrum of possibilities. My philosophy of teaching is primarily motivated by the impact of education on society in general. Over the years my teaching philosophy has evolved with how my audience (my students) have evolved during this period. It is important to me that the students are the central point of my teaching. I always go with an open mind in a classroom full of students to make them an active part of the teaching and learning process.

The activity of teaching and learning is an extremely symbiotic process. On one end of this process, the students learn material presented in the classroom, while on the other end, the teacher tries to comprehend if his students are truly learning the material being taught in the class. To me these activities are closely related to the success of teaching and learning inside and outside of the classroom. As teachers, the first and the foremost challenge we face is that of motivating our students to learn. This begins by asking ourselves how motivated we are to take up this challenge. I believe, that it is the combination of several ingredients such as dedication, perseverance, authority, good communication skill, flexibility, and character that make a good teacher. Yet above all these, passion to teach trumps every other such ingredient in the making of a great teacher.

As a teacher it is necessary to have a clear vision of goals for your students. Acknowledging the variation in individual learning abilities of the student can help in outlining these goals in the classroom to a board spectrum of students. Each student is unique in his/her way and brings a preexisting process of learning and understanding material. It is important to temper expectations and moderate assumptions about students understanding of the subject based on their prerequisite knowledge. I recollect a quote that I recently heard at a talk given by famous mathematics educator Dr Herbert Gross :“Students don’t fail calculus, they just don’t pass algebra”. This very statement has resonated with my understanding of how students in differential and integral calculus struggle to internalize the concepts that are build on the fundamental understanding of algebra, arithmetic and trigonometry. It is then no surprise to me that as a teacher my focus always been to solidify the foundation of basic mathematics for my students.

From the student’s point of view learning is the main purpose of education. It is the natural goal of every student to increase their knowledge and understanding in the classroom. However this is in an ideal world. I believe there are several different approaches that work with different sets of students, yet there are some critical areas, which are an essential part of learning in any disciplines. First and foremost, from the student’s perspective, being able to form unique independent ideas to solve the problem is extremely important in and out of the classroom setting. Additionally, teamwork, being able to share ideas and working with others to achieve a common goal is an essential part of this learning process. Lastly it is very important to use already learned ideas and processes in new situations. This is how students can experience new innovations and discoveries.

In this world of emerging technologies, it is essential to keep in mind that students, now more than ever access to new technologies such as iPhone, iPads, laptops etcetera. These technologies are playing
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a significant role in improving the overall understanding of material in the subject of mathematics. Over the past three years, I have received two grants to enhance the teaching and learning experience in large lecture classrooms. I have been able to increase the in-class student participation of students, increase the interaction with instructors and have been able help students organize their study material throughout the semester. Details of this project have been listed in my CV.

In the past five years as an assistant professor in residence and now as a lecturer in the department of mathematics, I have been able to keep my mind open to different pedagogical factors. I have realized, to be a good teacher is a learning process in itself. It was in the early part of my career as a teaching assistant, I realized that I was in an unique position to connect the real world with the world of mathematics. As such I believe that mathematics is the language in which all sciences get expressed. It is true that student perceptions about what role mathematics plays in science is at times ill conceived due their prior experiences with other teachers, but is not impossible to change those perceptions with organized lesson plans which, connect the dots from practical real world applications to concepts in mathematics. My engineering degrees has helped me bridge this gap on a more consistent basis. My brief yet crucial industrial experience has made it easy for me to relate complex mathematical problems in calculus to the real world. I believe that, this intersection of real world examples and importance of mathematical rigor will eventually help in bridging the gap in internalizing the material presented in the class room.

Recently I have enrolled myself in the Phd program in the NEAG school of education in the Instruction and Curriculum program at the University of Connecticut with emphasis on mathematics education. The motivation to pursue a second Phd in education was triggered by the concern of the gap between K-12 education and college education particularly in the subject of mathematics. It is well documented in the literature that students struggle with internalization of concept in addition of fractions, exponential, trigonometric and logarithmic functions in general. Although such evidence exists from the pre world war II era, educators and policy makers have only been able to have a marginal success in rectifying this issue. The lack of success of US school students in TIMMS exams in mathematics and science is also well documented. I intend to carry out a systematics research in this field to answer the age old question: “Why students in K-12 find it difficult to internalize basic concepts in algebra, trigonometry and arithmetics”

Last but not the least, I also believe that an education outreach program is absolutely an essential part of the teaching system. The objective of such a program would be to educate selected audiences (such as K -12 students and teachers) on important principles and concepts of math, science and engineering, with an emphasis on the role played by these fields in developing new technologies. I have been exposed to such an environment in the School of Engineering at Uconn during the Open Houses and Connecticut Invention Convention. I would like to use this experience to contribute to existing departmental outreach programs and to create new programs such as one-day seminars and week long workshops involving lectures and hands on demonstration for the K-12 students and teachers.