Statement of teaching philosophy

My Teaching Experience

I have diverse experience in teaching mathematics. I started my professional career in teaching mathematics in the fall of 2006, prior to my doctoral studies. I was appointed as a lecturer in mathematics in Riphah International University (RIU, Islamabad, Pakistan). There, I taught calculus I, multivariable calculus, numerical methods, business mathematics and advanced engineering mathematics. Currently as a graduate student, I am teaching at the University of Nebraska-Lincoln (USA). At UNL, I have taught recitation classes for calculus I and calculus II. In my first job at RIU I utilized a formal lecture-based teaching style, which is more common in Pakistan. In my second job at UNL I obtained experience with a more student-engaged style of teaching, which is more common in the U.S.

Formal Lecture based teaching: In this style of teaching an instructor prepares a lecture for every class according to a course plan and presents his lecture in the class. He conducts quizzes, homework assignments, class tests and the final exam. Usually, homework assignments are not specified to be completed as group assignments. And so, students have a choice to work on homework problems and preparing for the class tests either individually or in a group.

Student-engaged style Of teaching: In this style of teaching, an instructor tries to have the students more actively involved in the class. An instructor designs group activities and homework to engage students with each other in the learning process. A large class is divided into small groups of students for the problem solving sessions so that each student can have an equal opportunity to ask questions from the instructors and share their own ideas with their classmates. The instructor encourages the students to give in-class presentations.

I taught at RIU for three years and I have been teaching at UNL since the fall of 2013. I now find myself comfortable with both styles of teaching.

Teaching As A Learning Experience:

I want to teach mathematics because it is a learning experience not only for the students, but for myself as well. Teaching mathematics is a skill that requires knowledge, good communication skills and experience. Seeking education has always been my passion. I think deeply about a topic when I prepare that topic to teach in a class. I prepare to the best of my abilities for answering any expected question raised by the students. When planning a lesson I always think and ask myself questions about how best to explain a topic in an understandable way – What should be said about a particular topic in the way of explanation? How can I involve more students in the class? This thought process helps to enhance communication and a shared learning experience. Although my primary mission is to transmit knowledge and learning to my students, I find that teaching is a great learning experience for myself as well. I believe that we improve ourselves from our experiences. Our ability to express our thoughts and explain details improves with the passage of time. When students learn something from me and succeed through their academic careers it gives me great joy.
Preparation For A Class: While preparing for a class, I consult various sources along with the textbook so that I can present a broader picture of a topic. I consult different textbooks and websites to provide more examples and exploratory exercises. Every author has his/her own approach towards a topic. In order to illustrate any particular concept, different authors may well provide quite different sets of examples and sets of problems to work on. I enjoy gathering a wide array of viewpoints; in this way I feel more well equipped to contribute to lectures and class discussions. In this way, I not only quench my own selfish thirst for knowledge, but I also serve better as a teacher. I give references of the sources I have come across to the students so that they may consult those sources as well. From the students’ point of view, consulting a variety of sources improves their confidence level and contributes to their ability to independently think and explore and to solve problems by themselves. My preparation for a class is appreciated by my students. In my course evaluations, I have received comments such as,

“He was a good TA, always willing to answer questions and explain things in different ways. Also a very nice person and cared about students. Always seemed to be very prepared and knew what he was doing”.

Before every class, I send an email to my entire class announcing my teaching plan for the next class. In this email I describe the topic that I plan to discuss in the next class, along with some background information of the topic (if possible), so that students can look at it in advance and they can equip themselves with questions about that particular topic.

My Approach Towards Teaching Mathematics

I believe mathematics is easier to understand, if it is taught by student-teacher interaction. Whenever I pose a new problem in class, I ask my students how we might solve that type of problem or how might we begin to think about the problem. If their answer os correct, or at least reasonable, I accept their answer and do what they say. If nobody can answer correctly, then either I ask another question which leads to my previous question, or give some hint. Most of the time the students immediately answer my first question after thinking about the hint. If they don’t answer even after getting the hint, then I explain what should be done to solve this sort of problem. This interaction with the students immediately involves everybody into the topic being discussed and it develops a thought process among students which helps them to learn mathematics by themselves. When students work on their math homework problems, they ask the same types of questions and understand how to solve homework problems by themselves. In this way students develop more confidence.

Provoking The Thought Process

I do an interactive activity in every class after presenting some examples and explaining how to solve problems related to the topic of the class. I pick a problem and write the question on the board. Then I ask the students to solve that problem by themselves. I allow them to talk to each other and I give three to five minutes to work on the problem. I encourage them not to look at the board. Meanwhile, I solve that problem on the board silently. Some students solve the problem correctly, some get a wrong answer because of some mistake, and some students stop in the middle and don’t know how to proceed further. They ask for help from their friends or they compare their work with other students and try to solve the problem. A few students read my solution on the board, but I feel that is alright, because in my mind the real purpose of this activity is to stimulate a thought process among the students. So, whenever their pen stops and they realize that they don’t know how to proceed further, they realize where they need help. After five minutes, I tell...
them to compare their answer and solution with my solution and answer and let me know what questions they have. In this way, all students pay attention to my solution and notice their mistakes. This activity also develops mathematical intuition among the students.

ADDRESSING MATHEMATICAL MISCONCEPTIONS

Sometimes in the class when I ask a question, I get two different answers from the students. To get everybody’s attention and engagement in the class, I do a fun exercise. I say “For this particular problem, we have two different answers, say, A and B. Let’s see how many believe that answer A is correct, how many believe that answer B is correct, and whether there are any who believe that neither is correct.” Everybody thinks for a minute and then votes for one of the answers. Then I ask why they think their answer is correct. After listening to their explanations, I present the correct answer with complete explanation. This activity not only draws students attention towards the topic of the lecture, but students learn in an entertaining way. It also removes some of their misconceptions that they may have had about that particular problem.

VISUAL LEARNING

Throughout my teaching career, I have observed that most students understand mathematical concepts and problems more quickly from pictures, figures, diagrams and graphs. So, I try to explain things by drawing figures on the board. Sometimes I find short videos on the YouTube to be helpful. I play these videos in the class. For example, one discussion in my calculus class was centered on the topic of how to obtain a description of a family of functions just by looking at the graph of the derivative of the function. I played a five minute video from YouTube in which this topic was explained very well. After showing this video, I solved one example from the textbook by using the same method that was presented in the video. Then I took another similar problem from the textbook and asked the students to solve it by themselves in a few minutes. Meanwhile, I observed how the students were approaching that problem. After a few minutes, I solved it on the board. I feel if I had lectured on that topic in a conventional way, not showing any video or not allowing them to experiment with a problem from their textbook, then this learning experience would have been less effective.

DESIGNING HOMEWORK ASSIGNMENTS

The real purpose of homework assignments is not to fulfill a formality and keep students busy at home but it is to help students to understand the material covered in the class. I design a homework assignment based on the material discussed in the class and the details given in the textbook so that if the students listen to my lecture and read the textbook then they will be able to solve the problems posed in the assignment. Homework assignments are a substantial part of the students’ final grade in the course. I give bonus points to those students who show improvement in their homework assignment and encourage their efforts by dropping a couple of their lowest scores in these assignments.

PREPARING FOR EXAMS

I always arrange a special study session with my students before their exams. The purpose of this session is to answer their questions about the material covered for the exam. I also work on one of the old exams in this session and make one or two other practice exams available for the students so that they can solve them and get an idea about the pattern and level of difficulty of the coming exam.
This activity boosts students’ confidence and preparation for the exam and they perform better on their exams. Students like these review sessions very much and in my course evaluation surveys I receive comments such as,

“Inam is an excellent TA, he was always willing to set aside time to help students. He even set up a review session”.

**Student Evaluations**

Lastly, I want to quote some of student’s comments selected from my student evaluations. The evaluations were conducted anonymously. An official record verifying all the comments quoted in my teaching statement can be provided upon request.

- “Great TA, very helpful and kind. Enjoyed recitation with Mr. Inam”.
- “I would rate it A-”.
- “He did a good job going through the material, and changing his plans based on what the class needed help with”.
- “The instructor supplied more than enough help with solving problems faced throughout the duration of the course”.
- “He was able to clarify certain sections and made it easier for me to understand the material. At times, his writing on the board would be hard to read but he was nonetheless, excellent at assisting the students and going over homework questions”.
- “Good teacher! Thank you for your passion, dedication, and all your hard work! I am very appreciated”.
- “Mr. Iman was a very good recitation TA. He was helpful in answering any questions I had and seemed to be knowledgeable and enthusiastic about the concepts he was teaching. He was friendly and was very approachable, to where one felt comfortable and at ease during the recitation class”.