

## **Teaching Statement**

### **Sudeshna Basu**

The first thing I realized as a mathematics instructor, was the intimidation that the majority of students feel towards mathematics. To quote Bertrand Russell, “Mathematics, rightly viewed, possesses not only truth, but supreme beauty—a beauty cold and austere...”, -- and we cannot agree more. But what I realized as a teacher is that most of my students are not going to be mathematicians but will need mathematics as a tool to advance their studies in different directions. So, the main challenge was to strike a balance between mathematical concepts and its pertinence to real life. On one hand, the teacher should try to make the students comfortable with understanding the mathematical concepts and on the other hand, help them acquire the skills they need from it.

Until recently, I followed traditional teaching method by giving prepared lectures. When I taught a course, I followed the textbook and presented the topics in a way which was more comprehensible to the students. I tried to give my students an overall view of the course, often explaining how an idea in a subsequent chapter answer question about a preceding one. The students were encouraged to ask questions however trivial they may think their questions were. I am happy to say I could create a conducive atmosphere where the students’ asked questions and we were engaged in lively discussion. I gave them projects to work on which involved independent study outside of the course. I had scheduled office hours for at least three hours per course per week so that the students can come and talk about their specific problems regarding the course. Other than my scheduled office hours I always encouraged the students to make an appointment and see me if they have more questions or for some reason, could not see me during my scheduled office hours. I regularly met with my grader to keep them updated about the class materials, homework assignments so that they could do students’ assessments in fare manner. . While teaching, I tried to keep a balance between the best and the challenged students. I chose a pace so that most of the class felt comfortable yet had enough additional problems to engage the best minds.

My teaching was solid, but I felt I needed to connect more with students. So, I initiated an aggressively active learning method which demands more student participation and engagement. I have initiated and implemented active learning methods in applied calculus course at Loyola University. To my knowledge this method is tested and seen to very effective in small classes. Towards the end of each lecture, I hand out a worksheet based on the concepts developed that day and engage the students to work in small group and submit at the end of the class. This enhances the learning experience among the students and clearly shows the advantages and merit of implementation of active learning techniques in class.

It is always good to remember that for most students, the math courses they take are requirements for their majors. Through my teaching, I try to show the students that math is relevant for their majors, Discussions with other members of the department teaching the same course, help stay us

connected. Determining the central concepts of a course and addressing the needs of the students is always a high priority for me. Setting goals for the students is an important aspect of my teaching. This requires a balance of the several aspects of the course like classroom involvement, homework assignment and testing components and I address this effectively in my syllabus.

Using online sources as part of learning process is very useful. I have been using Moodle and webwork to assign homework, post announcements, upload additional teaching materials like practice quizzes, practice tests and the solutions of the tested and practice materials. Uploading useful and relevant videos also helps in engaging the students in a meaningful way. Adding this component to classroom teaching is an added advantage to engage and assist students beyond classroom.

I am also teaching upper-level undergraduate courses designed for mathematics, statistics, computer science and data science majors. The experience is rewarding in its own way. Over and above teaching the syllabus, I try to engage the students in concepts beyond course content. Being able to share the beauty of mathematics with mathematically inclined students is a sheer joy. I challenge them to read additional materials and write reports on their understanding. I also make it compulsory for all students to give a short presentation on their findings and initiate a discussion after each such presentation. I am in the process of designing new courses for our department.

The pandemic has trained most of us to online teaching mode. I have been using zoom to meet and discuss additional problems and queries the students have.. It is a completely different experience for me. I found this platform user friendly and effective. It gave me ample chance to interact with the students, engage them in discussions and use whiteboard and jam boards to write my mathematical equations and derivations as I would in a classroom. With this new experience, I am equally comfortable teaching in class, online and hybrid mode whatever becomes the best possible scenario.

Lastly, I have been teaching for more than two decades both in US and India and it is one of the most rewarding experience. I am equally adept at handling large classes comprising more than hundred students as well as small intimate classes catering to a few motivated students. I love to interact with students, encourage questions from them and try to keep the atmosphere relaxed and easy.