1 Introduction

"*Some of the stuff was too basic*", "*Few topics were too hard to grasp*", "*I am feeling like I wasted my time by enrolling in this course as the topics were not related*". " *We were just looking at long equations*" are the feedback reviews that I received after teaching my first course at the National University of Sciences and Technology (NUST), Pakistan. The course was about advanced calculus. The contents included differential equations and an introduction to mathematical modeling. It was 2009, I had just started my teaching career, was enthusiastic, and had been very eager for the course to start. Students enrolled up to the full capacity, almost 200 students from different backgrounds, including mathematics, engineering, computer science, and some from biological science. I worked hard, prepared for each class, used extended office hours, would respond to student's emails promptly, used a mix of technology and traditional teaching styles. But still got bad reviews. After investigating the problem deeply, I realized that the problem was neither with course contents nor my efforts. The problem was how I presented the contents. I was unable to satisfy some students in the class. For example, while explaining the basic SIR model, I would either tend too much towards biology or too much towards math, which would make class boring either for mathematicians or biologists. Thus, in every class one group (students with majors in biology, mathematics, engineering, or computer science) would feel left out. As I was patient, I worked hard to overcome this issue. It took me years to develop the skills to deliver a mathematics lecture to students from different backgrounds.

As an experienced teacher in mathematics (10 years of teaching experience), I believe that developing content for a course is a relatively easy job but the delivery of those topics in a classroom setting is a skill that comes with time. Basic mathematics courses like Calculus, Differential equations, Numerical analysis are prerequisites for many disciplines and in these courses, we could expect students from many different backgrounds. Similarly, different quantitative biology courses are also attended by students from various backgrounds. This makes teaching these courses much harder. I have developed skills over the years to be a successful teacher in teaching these courses.

2 Teaching Characteristics

I try to focus on everyone in the class. I believe that everyone is smart and if they are in class, they are eager to learn. They must be given an equal opportunity to learn it. For those students who are falling behind, I would ask them about the problem they are having in class and come up with solutions. In my teaching career, I have dealt with many of these kinds of students and have recommended students either to watch a video on the topics they could not grasp well or ask them to solve a homework problem which is tailored to the need. This strategy has worked for me. I always connect new ideas to the previous ideas that students are already familiar with. I find it very useful to remind students of the mathematics they have learned in previous courses.

Before exposing students to hard math, I always provide them with examples where these ideas are used and how beneficial they are. I believe if I can convince students that whatever math they are going to learn in this limited time slot is having some useful application and they need it to excel in their career, students make their minds willing to grasp the idea. It is just like making the students hungry and then provides them with some nice food. While presenting an abstract mathematical concept, I usually provide students with an analogy from day to day life to make it easy for them to grasp the idea.

I never go to class unprepared. While preparing for a lecture I always keep in mind the audience and prepare according to them. For example, if I am presenting an infectious disease mathematical model I would go to class with a good enough preparation for infectious diseases as well. I believe that mathematics should be taught with a proper mix of teaching technologies and old-school teaching techniques, like using a whiteboard or blackboard.

This teaching philosophy is a reflection of my 10 years of teaching experience. During these 10 years, I have taught courses ranging from basic courses for the university entrance to fourth-year undergrad courses to students with different backgrounds such as mathematics, statistics, engineering, computer science, or biological sciences.

3 Teaching Experience

- Instructor, *Financial Mathematics, MATH 3900 / ECON 3900*, Department of Mathematics and Statistics, Dalhousie University, Halifax, NS, Canada – Winter 2021
- Teaching Assistant, *Differential Equations, Probability for Life Sciences*, Department of Applied Mathematics, Western University, London, ON, Canada– 2019
- Teaching Assistant, *Calculus with Analysis for Statistics*, Department of Applied Mathematics, Western University, London, ON, Canada – 2018
- Instructor, *Calculus 2*, School of Applied Science and Technology, Fanshawe College, London, ON, Canada – 2018
- Instructor, *Business Mathematics*, Lawrence Kinlin School of Business, Fanshawe College, London, ON, Canada – 2017
- Teaching Assistant, *Applied Mathematics for Engineers*, Department of Applied Mathematics, Western University, London, ON, Canada – 2015, 2016 & 2017
- Teaching Assistant, *Introduction to Differential Equations*, Department of Mathematics & Statistics, McMaster University, Hamilton, On, Canada – 2015
- Teaching Assistant, *Engineering Mathematics*, Department of Mathematics & Statistics, McMaster University, Hamilton, On, Canada – 2014
- Teaching Assistant, *Linear Algebra*, Department of Mathematics & Statistics, McMaster University, Hamilton, On, Canada – 2014
- Teaching Assistant, *Linear Algebra*, Department of Mathematics & Statistics, McMaster University, Hamilton, On, Canada – 2013
- Instructor, *Differential Equations & Transforms*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2013
- Instructor, *Numerical Methods*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2012
- Instructor, *Calculus and Analytical Geometry*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2012
- Instructor, *Probability & Statistics*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2011
- Instructor, *Calculus and Analytical Geometry*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2011
- Instructor, *Calculus and Analytical Geometry*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2010
- Instructor, *Numerical Methods*, NUST Institute of Civil Engineering, NUST, Islamabad, Pakistan – 2009