Teaching Statement — Anirban Bhaduri

Introduction

Growing up, I have been taught two things which I still believe in: (a) respect people with knowledge, and (b) never stop learning. Being a Graduate Instructional/Teaching Assistant at University of South Carolina and a private tutor during my undergraduate days in India, I have taught Mathematics to a diverse set of people and yet, each time I enter a classroom, I learn something new about teaching. As a Mathematics teacher, I always make sure that I provide a helpful, inclusive and supportive environment for learning.

Engagement and Active Learning

Since I have been in a classroom as a Mathematics instructor, I have incorporated more than one pedagogical tool to enhance my instruction. These methods are included in my lesson plan so that I can gather evidence for student learning and help me "learn something new about teaching". These methods include:

- **Inquiry-Based Learning**: I conduct frequent brainstorming sessions in my class after my students have familiarized themselves with a topic. These include working on a slightly challenging problem with the students where they think about the solution for a few minutes, and then I provide necessary guidance from time to time to help them reach a solution. Sometimes I provide the first two steps of the problem and let my students fill the rest. I encourage them to question everything, even the solution that I write. I do lend a hand when I find that a particular student is lost or demotivated to solve the problem.
- **Collaborative Learning**: Mathematics thrives on communication and collaboration. I dedicate a significant portion of my class time to group work, discussions, and peer-to-peer interactions. These include working with worksheets in groups, discussion on approach to a problem, and occasional group quizzes. I believe that in addition to lectures from the instructor, talking to peers enhances a student's understanding of concepts. I promote collaboration by assigning groups at the beginning of the semester with an ice-breaking session. I also make sure that students' choices are heard by participating myself with students who are reluctant to work in groups. I remember using these methods more during Calculus recitations and students appreciating it as they found it easier to understand Calculus once they talk to peers.
- **Technology Integration**: I used software like `Desmos` and `Sage Math` in all my Calculus courses for better understanding and learning of my students. I also practice lecturing by writing on my iPad which helps me keep a PDF of all the board work in class. This helps students focus on the classroom discussions, as they can look back at the class notes later to write down what they have missed. This also lets me walk around the classroom with my iPad and engage with students during class.

Communication

- **Muddiest Point**: For courses like College Algebra (MATH 111) and Business Calculus(MATH 122), I practiced what is called the muddiest point. Students who had a tough time understanding a particular concept in a class can write it in a paper and let me know with full anonymity. I made sure I went through the concepts that were most mentioned in a particular class in the next one. This way, it helps me assess my

teaching regularly and change my teaching if needed.

- **Mid-Semester Evaluations**: In each course I teach as an instructor, I send out something called a mid-semester evaluation form. This one page form asks students to evaluate various aspects of their classroom experiences which includes teaching style and pace, content of the lectures: theory v/s problem solving, level of difficulty for exams and quizzes, length of weekly assignments. Students are asked to provide feedback and suggestions with anonymity. I try to mould the second half of the semester according to the feedback.
- **Various Classroom Practices**: I practice running an inclusive and equitable classroom. I make sure students communicate their thoughts openly in the class. During problem solving sessions, I regularly go around the classroom in order to reach out to students who are struggling and feel uneasy to communicate otherwise. I have found that students tend to respond and interact more once I communicate and discuss with them one-on-one. I also encourage them to critically view solutions and ask questions at every step, even if it is done by me.

Support and Inclusivity

Students have diverse learning methods and background. One of my big goals at the start of every semester is to make sure I provide a supportive and inclusive environment in my classroom. My strategies include:

- **Providing Clear and Varied Explanations**: I explain concepts in detail and provide enough examples. I sometimes explain a down-to-earth example and then provide the theoretical background. I recognize that students have different ways of learning and I try to reach out to each student in their own way.
- **Creating an Inclusive Environment**: I support a diverse and inclusive environment and I believe, this comes from my background as being a student myself once whose first language was not English. I tend to respect people with diverse backgrounds and make sure my class including me are respectful and cooperating towards people of different race, gender, orientation, nationality, etc. and even students with special ability.

Assessment and Feedback

As an Instructor for a course, I make sure that my students are getting assessed equitably and effectively. I make sure to provide detailed and precise feedback from time to time. My assessment strategies include:

- **Formative Assessments**: My formative assessments include in-class brainstorming sessions, frequent quick polls and exit slips. These help me provide students with feedback on problems that are covered that week. This helps them learn material weekly with incentives. This also provides me with concepts that students usually struggle with and that need more attention. I also provide problems beyond the classrooms for them to work in groups and prepare them for exams.
- **Summative Assessments**: These include exams and weekly assignments. These are long format assessments. These give a detailed understanding of how much a student has understood the concepts and how much they can apply those theories by solving problems.

Beyond Classroom: Peer Mentoring Program

Apart from being an instructor at USC, I was also a part of Peer Mentoring Program at USC both as a mentor (Fall 23-Spring 24) and as a mentee (Fall 22-Spring 23). In this program, as a mentor who is a senior graduate student, you are expected to help and navigate first-time instructors based on your teaching experience. Part of my duties include:

- **Observations:** I conducted three observations for each novice which included critical viewing of lectures, class management and the classroom environment and share constructive feedback about the same with them later.
- **Small-Group Meetings:** I conducted seven group meetings in Fall 2023 and five in Spring 2024 with my novices. We discussed in great details varied topics from Student engagement to syllabus structure, length of exams to classroom environment, grading scheme to common pitfalls and challenges as Instructors.

Overall being a peer mentor has been a great experience where I was able to share my experiences with first-time instructors and also learn from them more tips and tricks that they were using to enhance their lesson. I feel this program also helped me reflect on my teaching style and teaching philosophy.

Conclusion

To sum it up, I would say that teaching mathematics has helped me see Mathematics in a different way. Each time I explain a concept or present an example, I feel myself closer to understanding Mathematics. Many times I find people associate mathematics with intelligence. We hear students say "Oh! this is how we do it. I am so dumb". I always correct them by telling no one is dumb, we are all learning. When students in class point out mistakes in my work, a part of me also believes that I was able to teach them right and probably a part of them understands that it's okay to make mistakes, and there is no shame in admitting them. The end goal is to learn and understand better. I do believe that the classroom practices that I mentioned here help me grow as a teacher and provide a helpful, inclusive, and supportive environment. As my Chemistry teacher in high school once said, which I carry with me whenever I teach, " try to absorb the concepts, not adsorb" *(adsorb = cling on the surface, absorb = take in).*