

TEACHING STATEMENT

PARTHA S. DEY

To me teaching is an integral part of academic life. Not only it helps clarify and organize ideas through introspection but it also gives the satisfaction of sharing knowledge with others. I enjoy teaching immensely. In fact, the willingness of a teacher to share knowledge with students without expecting anything in return is what attracted me towards the academia. Teaching is also an art with the ultimate goal of instilling a deeper understanding of Mathematics into the students, increasing their aptitude in understanding problems from their respective fields and innovating new methods to achieve these. It seems to me that the step by step explanation of an idea to a student and the thought process inside the brain for solving a problem are the two sides of the same coin.

One important part of my experience as a Courant Instructor at the Courant Institute of Mathematical Sciences, New York University and as a graduate student at University of California at Berkeley, is the opportunity to serve as both *Instructor* (in CIMS, NYU) and *Graduate Student Instructor* (in UC Berkeley) for several undergraduate and graduate courses on statistics and mathematics. Through this experiences I have developed my own teaching style and have gradually grown as a teacher over the years. It is impossible to explain the joy, when one of my former student currently working in a Financial Firm in New York, personally thanked me for the Stat 204 class at UC Berkeley.

Role as a Teaching Assistant: As a teaching assistant, my involvement with the courses ranges from holding weekly discussion sessions, holding office hours, preparing solutions to homeworks and grading them to the occasional lectures in the instructors absence.

1. Undergraduate courses: My first ever formal experience with teaching was in Summer 2007 as a TA for Stat 20 in UC Berkeley. This was a lower division undergraduate course on basic concepts of statistics and probability theory. I tried to avoid symbolic manipulations as much as possible and worked through various interesting examples. It was simply a challenge to work with a diverse group of students with the aim of motivating and helping them with their study of basic probability theory. I developed the style of explaining ideas, in a less technical fashion, so that it is easier for the students to understand and appreciate.

In the next summer I worked as a GSI for Stat 2 which is a lower division undergraduate course in introductory statistics. The students were from very different backgrounds and interests. I took a very simple style of teaching in discussion sessions. Instead of going through abstract concepts, I started with concrete problems that paved the way for the mathematical results. The full classroom and comments from the students encouraged me to implement this style later in a graduate course.

2. Graduate courses. Being a teaching assistant for a graduate course was also challenging. Not only because the concepts are difficult, but also one needs to have a strong grasp of the subject, good technical skills, and the ability to communicate clearly.

In Spring 2008, I worked as GSI for Stat 205B in UC Berkeley, the second graduate course in measure theoretic probability. I think it is relatively easier for a good teacher to motivate the students in a graduate course than an undergraduate course. However, it is also a challenging exercise to make them connect the abstract concepts through a common mathematical language.

Moreover, the solutions helped me develop my reasoning and problem-solving capabilities as in most situations I had to prepare the solutions on my own. Though initially some of the students complained about rigorously checking the details, later it was them who were expecting it.

I was later assigned as GSI for Stat 204 in Fall 2008 in UC Berkeley. This was a interdisciplinary course in Probability for graduate students in the Statistics, Biostatistics, Computer Science, Electrical Engineering, Business and Economics Departments. I divided the two hour discussion section into one hour of explaining and applying concepts from the previous class to different problems and the rest for problems from their own research areas. The success of this style was evident when I got a median score of 6 out of 7 (in a class of 23 students) in the end of the semester evaluation. I received several good remarks from many students, like “the best GSI I ever had”, that strengthened my belief as a teacher.

Role as an Instructor: My most significant teaching experience was in the Fall of 2010 and 2011 as the instructor of two undergraduate courses in CIMS, NYU. In fall 2010 I taught the undergraduate Linear algebra V63.140 course which was a first level course on linear algebra. Here I indented to design the course to give equal importance to understanding theoretical results and applying them to real life problems arising from diverse fields ranging from Biology to Physics to percolate my appreciation for the subject to the students. The real challenge was to making the students understand the concept of rigor in mathematics and the course material as well. Along with showing them how to write a proof, I used softwares like Matlab, Mathematica to make the course more enjoyable. At the end of the semester, some of the students thanked me for helping them in deciding to major in math.

My next experience as an Instructor was in Fall 2011, when I taught undergraduate Calculus 2. Though the course was co-ordinated with a fixed syllabus, I tried to make the course as interactive as possible. The primary job of an instructor is to create a classroom environment where the students feel at ease and do not hesitate to communicate. I always encourage my students to take part actively in discussions and hold one hour of discussion every week to clarify the issues. During the lectures I often pose a question to my class which sometimes leads to an informal discussion of the problem at hand and also helps me to gauge level of the class which came in handy in the subsequent lectures. As an instructor for the Linear Algebra course, I had observed that students understand a concept better after first having some realization of why it is important or relevant. That is why whenever I introduce a new concept in class, I try to emphasize the motivation and the mathematical or real world context in which the concept fits in and use analogies to compare it with familiar ones. I try designing assignments to cover the entirety of the topics taught, balancing theory and practice. The effectiveness of my new teaching style increased became evident in the course evaluation summary which I have attached below.

I believe I have the knowledge and interest to efficiently teach any undergraduate course in mathematics and statistics. For graduate level courses I would be interested in point processes, measure theoretic probability, stochastic calculus, large deviations, Stein’s method, concentration inequalities, percolation theory and Gaussian processes.

Finally I believe that the spread of knowledge leads to a better understanding of a discipline and paves way for further knowledge and teaching helps giving new meaning to old ideas from new perspective.

Partha Dey

Course: V122-9 CALCULUS 2

LEC

 With the exception of Overall Evaluation, the possible rankings were:

 1. Poor; 2. Fair; 3. Good; 4. Very Good; 5. Excellent

A total of 27 students replied to this questionnaire.

Q1.	Ability to present material clearly	4.00
Q2.	Ability to respond to questions	4.04
Q3.	Availability during office hours	4.44
Q4.	Level of preparations for each class	4.33
Q5.	How would you rate the course?	3.70
Q6.	How would you rate the text?	3.30

Overall Evaluation

1. Would you recommend this instructor to a friend? (Yes, No, or Maybe)

Yes: 77.78%

No: 3.70%

Maybe: 18.52%

2. How would you rate the overall teaching ability of this instructor? 4.15

Comments were also requested and any comments are listed below.

Is able to teach well and explain most material but when an answer to a question on how to solve a problem is "I can solve it because I know the answer already" it would be better to not use those types of questions/problems.

Very good professor, may want to be a little more interactive.

Partha was very helpful and always available.

There should be a different textbook. Stewart is not great at explaining concepts.

I really liked the professor. He really knows math and is very understanding.

Partha is amazing.

Very hard class.

Best guy ever! Calculus God.

Very tough course.

Partha Dey

Course: V63.0140-4 Linear Algebra

LEC

With the exception of Overall Evaluation, the possible rankings were:

1. Poor; 2. Fair; 3. Good; 4. Very Good; 5. Excellent

A total of 22 students replied to this questionnaire.

Q1. Ability to present material clearly	3.80
Q2. Ability to respond to questions	4.00
Q3. Availability during office hours	4.30
Q4. Level of preparations for each class	4.14
Q5. How would you rate the course?	3.81
Q6. How would you rate the text?	4.05

Overall Evaluation

1. Would you recommend this instructor to a friend? (Yes, No, or Maybe)

Yes: 59.09%

No: 0.00%

Maybe: 40.91%

2. How would you rate the overall teaching ability of this instructor? 3.68

Comments were also requested and any comments are listed below.

Professor Dey was very helpful as a professor and facilitated my learning of the course material.

His style took a little to get used to and he seemed disorganized at times but otherwise he was excellent.

Sometimes the more complicated material was done quickly, while the complex material was done too thoroughly.

Sometimes sped through difficult material and spent too much time on easier material.

Professor tends to ramble a bit while teaching and tends to move quickly at times. Overall he is approachable and wants to see students succeed.

Only complaint is clarity of some lectures. Use simpler languages like you do in reviews.

Rough start but got better. His notation and doctor-ish cursive can be a serious hindrance. Still, I'm hopeful for this one. Smart fella; suspect his teaching swag will pick up over time. Give the dude a chance and I think he'll be a top ten guy pound-for-pound.

Sometimes the instructor was hard to understand because of his accent, which I know, isn't his fault but he is very helpful otherwise even though I leaned mostly from textbook instead of from him.
