

TEACHING STATEMENT

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My teaching philosophy largely stems from my desire and passion to share mathematics with others. The idea is to give students a glimpse of the beauty of mathematics and to help break down the general misconception that mathematics is hard. When I go into the classroom, my goal is to have the students leave with a better understanding of the course material and a deeper appreciation for mathematics. To this end, I encourage students to try out new ways to solve problems, and help develop their critical thinking abilities.

To achieve these goals, I believe it is fundamental to prepare any lectures and tutorials in advance. Lectures must be connected in a coherent way - I always start the class by recalling what was done previously and how it relates to what we will be doing. I find this approach quite helpful for students since it shows them the course has a well defined structure and they understand where we are heading. Keeping an open line of communication during class is also important: I try to create an environment where students feel comfortable enough to ask questions at any time during the lecture.

When it comes to lectures, I like to structure them by starting with a motivating example that introduces the theorem (or concept) I will explain next. I then proceed with the theorem and proof, which I may skip depending on the audience. Finally, I like to consolidate what I just taught them with a new example.

Similarly, I always start tutorials with a brief review of the previous week and an overview of the new concepts introduced in class. Seeing the concepts repeatedly, and often in a different manner, helps improve the students' understanding. Particularly, in my experience, this is useful for all students. For some it acts as a review whereas, for others, it is a different perspective on a topic that they are having trouble understanding. In the remainder of the tutorial, I focus on problem solving typically on the black board. I try to keep students engaged and participative by asking them questions which help solve the problems step by step.

Regardless of the class format, I find it very important to be available for questions right after. Therefore, whenever possible, I hold office hours right after class. This is beneficial for the students in many ways. First, it can serve as an informal continuation of the lecture or tutorial. Secondly, it gives students who might not feel comfortable asking questions in front of an audience to resolve any problems they may have with the material.

I believe that homework is essential. As nearly anyone in the field of mathematics can attest, most concepts are solidified only upon practice. Assignments should be issued on a regular basis, and should play a significant role in the students' performance in the course. Moreover, the content of the assignments should have a wide range of difficulty. In particular, they should reaffirm what students learned in class, but also challenge them to use the material in complicated problems. Regardless of assignment difficulty, I expect students to excel since I encourage them to come to me for help and hints on how to approach the problems.

During my five years at McGill, I have accumulated much teaching experience. This semester (Fall 2016), I am the instructor for a junior course in Numerical Analysis (Math 317), after being the TA for the past three years (Fall semesters of 2013, 2014, 2015). Last year, I was the instructor for the sophomore course in Linear Algebra (Math 223) in Winter 2015. In addition, I was also the TA for a freshman course in Linear Algebra and Geometry (Math 133, Winter 2014). In all courses I received very positive evaluations, having won the award for best TA in the math department in Fall 2013 and an honourable mention in Fall 2015.

As a TA my duties included running weekly tutorials and office hours, and grading midterms and final exams. In Math 317, in particular, I developed a set of notes for the tutorials, which I have made available on my website. These notes cover nearly the entire course, including several examples and solutions to assigned exercises. Additionally, for the freshman Linear Algebra course, I subbed in for the lecturer on over half a dozen occasions.

For both Math 317 and Math 223, I was the sole instructor of the course which had around 70 and 150 students, respectively. In addition to the usual duties, I wrote homework sets of problems and respective solutions, while for Math 317, I also wrote weekly course notes.

I have also had the opportunity to lecture at the graduate level. Specifically, I substituted several lectures of Numerical Analysis I (Math 578) and Numerical Differential Equations (Math 579). I covered topics ranging from SVD decomposition, Fourier transform and wavelets, viscosity solutions and multigrid methods.

I have also taken advantage of resources available at McGill: a two day "Graduate Teaching Workshop" offered by T-Pulse (Tomlinson Project in University-Level Science Education) and a one day conference on "Innovating Beyond the Textbook: A Conference on Learning to Teach for Graduate Students and Post-Docs" offered by the Graduate and Postdoctoral Studies and Teaching and Learning Services.

From what I have discussed above, I believe that I can teach any course within my scope of knowledge with clarity and organization. Moreover, with the passion I have not just for teaching, but also for mathematics, I continually strive to become a better instructor and mathematician.