TEACHING STATEMENT - FERNANDO SCHWARTZ

It is almost ten years since the first time I stood up in front of a classroom. I have assisted and instructed classes at the University of Chile and at Cornell University. I gave talks at the IMPA in Brazil, and participated in seminars at Stanford University. Throughout this time, and common to all those different settings, the challenge to communicate effectively always arises.

This rather obvious remark has varied consequences. On the one hand, I believe that it is imperative to speak and write in an organized, clear way. But that only covers the "communicate" part. Effectiveness is measured by the amount of resources needed to transmit the message, and by how long the material is retained by the audience. In order to be effective, I always put the material in the simplest terms, even if that means sacrificing generality at first. I believe that via examples students have a better chance to learn the contents of the course. I also believe that preparing accordingly is of crucial importance. After all, giving a graduate seminar is quite different from teaching a section to nondegree students.

I found that a good strategy for teaching includes motivating and directing the audience, having frequent "punch lines" throughout. Math experts are willing to endure 1 hours of technical lemmas before seeing the proof of a theorem. Freshmen, on the contrary, lack the vision (and patience) to keep themselves on track, and their attention easily wanders. We have to realign their compasses to the true north frequently. And that means examples, applications, historical remarks, pictures, funny anecdotes, and pretty much anything to keep them interested. When devising such tactics, I keep in mind that many students just care about passing the class. In order to prevent frustration, I always manage to find a subliminal way to engrave knowledge in their minds, even if it is something simple.

I like to pay attention the students' needs and concerns, and keep in mind that slight modifications of the class structure may have a big impact.

The first time I instructed Math 112 at Cornell (calculus for non-math majors) I noticed that the majority of the students worked on their homework on Sundays, the day before it was due. Since this was their overall strategy, most of their duties were crammed in one day, with the obvious negative consequences. The next time I instructed the class, I assigned the homework on a daily basis. At first, the students were not thrilled, but they quickly realized that solving 3-4 problems right after class was easier than solving 20 on Sunday. Their homework grades improved and they attained greater understanding of the material.

Constantly looking for ways to improve my teaching is just another way to show that I care about my students. I believe that this is the key to having the students both enjoy the class and learn a lot from it.

1 perhaps sleep through?