

TEACHING PHILOSOPHY

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One important lesson that I learned in my experience dealing with Mathematics is the necessity for the motivation of its study. My beliefs are that it is a responsibility of the teacher to express the beautiful and fundamental role played by Mathematics in the description of the phenomena around us. If students were aware of the connection between Mathematics and the real life, this would help them to keep motivated to face their study with seriousness and enthusiasm. In my view, the teaching is the access road leading to this accomplishment.

As a teacher, I try to present Mathematics as a nonintimidating subject in a clear and organized way, exploiting the intuition as well as developing all the rigorous tools related to the material. The creation of an enjoyable and effective learning environment allowing a dynamical communication between teacher and students is one of my main priorities. I always encourage the participation of students in class, since in my opinion, it is a very effective way to provide a solid basis for learning and to offer a global view of the topic in different perspectives.

The analysis of the audience for which the course should be directed to is also very helpful. This way, the basic examples and the applications can be design to cover the material providing a better match with the background of the students and objectives of the course.

Another topic of relevance is how to treat the heterogeneity of the background of students in class. In my opinion, it is important to keep track of the performance and development of the class very closely. In this sense, the feedback of the students seems to be one of the most valuable devices. Also, it should be faced as a teacher responsibility to detect and suggest some complementary instructions and suggestions to minimize this heterogeneity. A close accompaniment with teaching assistants in class as well as the office hours seems to be a very powerful strategy to deal with these situations.

The effective teaching of Mathematics in general contains three major ingredients: concepts, manipulation and applications. The conceptualization is where the main ideas about the topic under study are conveyed to students. The manipulation of the objects is

also an important part of the student training as it allows them to absorb and materialize the abstractions and peculiarities of the subject. The applications are the bridge between what they see in class and practical real world problems. In my opinion, this helps them to grasp the power and the potential of Mathematics.

In the courses I teach, I always try to bring some historical background on the importance and development of the topic to give students a sense of context. I believe it is also important to convey the global view of the course and to put it in perspective with respect to the pre-requisites and the follow up courses they will have to take in the future.

In each lecture, every lesson to be discussed needs a brief and sometimes heuristic introduction that gives the students a general idea of the days' topic and how it fits into the broader scheme of the course.

In planing the lectures, I always select a kit of few examples that I will carry throughout the entire course to highlight the properties under study in different circumstances. This allows the students to see the new ideas on a model that is already familiar.

The practice problems in homework and quizzes are powerful device to boost the learning of the material. I try to select a substantial number of key homework problems that represent fundamental examples that complement the discussion in class. Sometimes when needed, I also provide sets of supplementary notes and problems for students.

I create webpages for the courses I teach where students can see announcements and assignments. They can also download additional material. I also put available a comprehensive syllabus describing all the policies for the course. The syllabus is fully discussed in a very detailed way in the first day of classes.

One of the most important goals of the effective teaching is to foster conditions to help students succeed in their professional endeavors. This can be pursued by engaging students on the cutting edge of curiosity and by providing them the tools to decode and explain the problems surrounding us.

Additional information about my teaching can be found at my webpage address given above.

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