

TEACHING PHILOSOPHY STATEMENT

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I have been teaching mathematics for the last six years and enjoy this work a lot. Even though six years is not a huge amount of time, during this period I gradually developed my teaching goals, strategies and methods, that I will describe below.

The starting point of learning is always a motivation. Unfortunately, there is no unique recipe for motivation that works for all students. While for some people it is more important to know where exactly they can use the material, others find the ideas of the course interesting by themselves. The final grade has a top-priority for many students as well, but during the course I do my best to explain that it should not be an ultimate goal. Otherwise students may lose the interest in the subject after the course is over and that is very undesirable for me. Therefore it is necessary to approach the motivation problem from different angles.

I always start the first class from a brief historical introduction, explaining why the material we will be studying is important and where it is used today. Then I try to explain the ideas behind the formulae, propagating the idea that the concepts have top-priority in mathematics and the formulae are just a reflection of the concepts on paper. Before proceeding to the theory I give a lot of examples and usually draw appropriate pictures.

Another very important source of motivation is enthusiasm for the subject. The enthusiasm of the teacher must be infectious enough to transmit to the students. In this case they will learn the subject because of the subject itself and not only because it is used somewhere else. The goal here is to share the beauty of the mathematics. My students have never complained about a lack of enthusiasm and they often emphasize this quality in their evaluations.

I try to develop a good motivating system of the students' progress control. It consists of exams, quizzes and graded homework assignments, which I find very important. All teaching goals are virtually unachievable without students studying outside the classroom and the homework assignments perfectly serve as an encouraging tool for that.

When the studying is well motivated it should be easier to achieve the other very important goals, including getting the students to know the material, teaching logical reasoning, fostering critical thinking. But there are still few more things that are necessary for effective learning.

My highest priority is to create a friendly atmosphere, in which students will not be afraid to ask any questions, make remarks and answer my questions. I encourage all sorts of questions by allowing frequent pauses for this purpose and treating each question with respect.

Another tool that I always use to keep the tight bond with the audience is letting students think first before giving the hint or the solution. Sometimes, in appropriate places, I may intentionally make a common mistake the students often do and, if no one notices, ask the students to find it. Of course, in that case it is very important to emphasize and repeat what the mistake was, but I think it is a very effective way to have students remember such common slips.

It is very important for the teacher to be well organized. Effective learning can be attained only with serious attitudes of the students and the teacher. In particular, this means that the teacher always has to be on time for class and be well-prepared. He/she has to concentrate the attention on the subject being taught not allowing big deviations to areas not related directly to it. But there are two important exceptions in this rule required for effective learning. The first one is humor. Showing the material in an entertaining way is very beneficial, because it helps to focus the students' attention on what the teacher says. By no means is mathematics a dry collection of facts, rules and methods and the teacher must be able to convince students of this.

The second exception is for little excursions explaining the relation of the material to the practice or different areas of mathematics or science in general. I personally find that such excursions motivate the study. For example, while studying oriented surfaces in calculus I usually say some words about topology and explain what is a non-orientable surface with the example of the Möbius strip. Often I suggest to experiment what will happen if one cuts the Möbius strip along the middle of the strip. When studying series I always tell about data compression and signal transmission.

It is very important to make lessons as personal as possible, giving an individual attention to each student. I always try to remember the names of my students and their performance in the class. As another way to make learning more personal, I encourage students to come to my office to fill the gaps in their prior mathematical knowledge. At the same time, for brighter students, I try to prepare some extra material.

Of course, a good teacher must be flexible. I always try to adjust to the audience by asking questions and looking at the reaction. Furthermore, for the freshmen level it is important to give the solutions of the main examples in complete details. At the same time teaching seniors or graduate students requires concentration on the ideas and sometimes leaving the details behind the scene.

As a bottom line, it is tremendously enjoyable to see how people learn something from you. And for me it is, perhaps, the main motivation to teach. After each well taught class I personally feel a huge satisfaction, which increases in the end of semester after vast majority of students evaluate my work positively.