

# Teaching Statement

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My teaching experience has essentially been consisting of undergraduate level mathematics and computer science courses. I was a teaching assistant while studying at the Freie University in Berlin and also taught courses when I was a research assistant at the Humboldt University in Berlin. The courses I have taught consist of Analysis (taught as a 3 semester course), Mathematics for Physicists (taught as a 4 semester course), Mathematics for Biologists and Chemists and Theoretical Computer Science (taught as a 3 semester course).

A good course, in my opinion, seeks a balance between making basic principles and ideas accessible to the students and teaching them the necessary techniques and mathematical rigor. This has certainly to be adapted, depending on whether the course is for majors or minors, for example. Nonetheless, even for courses with a supposedly rather applied character, students benefit a lot from not only being able to compute things, but also grasping the principle ideas behind their calculations.

Therefore I always try to reserve some time during the course to discuss the intuition of a method or result. I try to emphasize the big picture and motivate to develop an understanding of the possibility to work creatively, also when applying mathematics. This comes with creating an atmosphere where a student who has an idea does not feel scared or is embarrassed to tell it. Free interaction with the students is an important point in creating such an atmosphere. It is vital to take the students approaches to a problem seriously and not to discourage them if the one or the other idea does not work out. Often things that do not work out, if treated properly, can teach us more than a streamlined approach that elegantly circumvents all problems. In my experience, people who feel that something is their approach to a solution are more motivated and feel more attached to the actual problem, therefore also learning more about it. I vividly remember a course for biologists, where the students and me developed a differential equation to model life in an aquarium and how we drifted into an increasingly realistic model that, in the end, was beyond their level of mathematics. Nevertheless, they learned in a more natural setting how such equations are actually constructed and also, that some are beyond our understanding.

These moments, when students and me freely interact, are the ones I enjoy most when teaching. It is always interesting to learn other people's genuine approaches to problems. In addition to the joy it can bring, it is also always a good opportunity to broaden my own knowledge and sharpen my view of not only the mathematical world.