

# Teaching philosophy

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During the past 20+ years, I have worked with many students in many ways and settings. I am driven by my passion to make a personal connection with students so that I can align my teaching-methods and what I demand of them to the abilities of individual students. Smart students should be challenged in ways that do not work for students who are less intelligent. Insecure students should be handled differently from students that are (over-)confident. I treat students who are taking a course to find out whether they want to pursue a career in that particular field of research different from students who have already made up their mind and are highly motivated and determined. These students handle the information I give them differently. Both should be satisfied at the end of the course, having learned not only about the research field but also about their own interests, motivations, and abilities. In order to achieve this, I try to make all students feel at ease (via humour and personal conversations) and challenge them to perform at their maximum level.

I have translated my passion for education into a teaching philosophy that consists of six main components:

*[1] learning by doing.* I think it is important that, in addition to reading about science, students actively participate in doing scientific research. This focus on scientific skill acquisition (for example doing EEG research, perform a critical literature review) helps students to better absorb the course material. It also helps them to implement the theory behind these skills so that they can apply it more broadly. For a teacher, it may sometimes be a bit annoying to let students tinker and fiddle with equipment, rather than showing them precisely what to do. However, by giving them this opportunity, they typically learn the most as they discover the principles and procedures themselves. For workshops I teach, this makes writing the assignments rather challenging: I try to provide the necessary information and set clear terms as what must be done, rather than giving them a cookbook with fully written out recipes they must strictly follow step-by-step. In this way, I also try to engage students to become active themselves, rather than passively performing assignments. I try to allow students to discover themselves the intricacies of an imaging technique or analysis, but only after I have provided them with a clear theoretical background and context which they can use. Otherwise, learning-by-doing is merely trial-and-error and that is not an efficient nor motivating manner of education.

*[2] safe and stimulating learning environment.* This is directly connected to my drive to get all students to perform at their optimum level so that I (and hence the students also) get the best out of them. Indeed, although a good and safe atmosphere are not necessarily predictive of good learning performance, they help to increase the fun students have, their interest and motivation. These affective components are important prerequisites for the cognitive aspects of learning. Achieving this aim requires me to tailor my education to individual skill levels, but also to create a learning environment in which students feel safe to share their thoughts and ideas, even when those are not yet fully thought through. This is in stark contrast to some courses I have attended in which I did not

feel safe and hence did not actively contribute to classroom discussions. Moreover, if a student doesn't feel safe, he or she does not perform at their optimum level. That frustrates the learning process unnecessarily.

[3] *focus on input*. I think it is very important that students actively contribute to my courses. I therefore try to make my education as interactive as possible. I do this for two main reasons: 1] getting input from students lets me know their level of understanding about what we are doing, 2] their input can help other students get a grip on the material. By the latter, I mean that the input from students offers new perspectives on the material besides the one I talked about. This is particularly relevant for groups of students with very diverse backgrounds and interests.

[4] *learning by feedback, not by grades*. Ending the course with a good grade should reflect active student engagement and learning throughout the course, not only cramming in a lot of information the night before the exam. In a sense, the latter is similar to a student highlighting all sorts of important sentences in a text so that he can reproduce them during the exam. The problem then may be that the student does not remember any of the important issues two weeks after the exam. I want students to read the text (or look at the videos) to get information about the theory. I try to do this in a fun and challenging way, as to help students with their motivation. By starting the plenary session with a short quiz, rather than a recap of the studied material, students can check if they understand the material. These quizzes are not graded. They are, however, very valuable as they provide feedback to students (am I on track to understand the material) and to me (are the students doing their homework and did I explain the material clear enough). By discussing the results of these quizzes, I can intervene by providing additional information on the topic or motivate students to work harder. Moreover, by having a plenary discussion of a research paper on the topic of that week, and by asking questions about it, the students are able to test their own understanding of the key points that were made during the video lecture.

[5] *encourage a critical attitude*. I think this is one of the most important aspects of academic teaching: students must learn that they should always ask questions. Not everything the teacher says is true, not everything that is written is true. Students should always remember that. Next, students need to learn which questions to ask. Therefore, they need the information from the course, but also academic skills. By combining these three (information, skills, questions), students can discover themselves what (type of) questions are relevant to investigate the value of (research) information. I really like to facilitate this process in students. As this is a fundamental aspect of academia, I hope that this critical attitude generalizes to research domains outside the scope of my courses.

[6] *focus on individual interests*. Good education is education that is tailored to the students. In that way, it is similar to research; novel findings are introduced within the context of what is already known. I try to make my teaching more relevant and accessible by connecting to individual interests (which are potentially partially based on background knowledge). I do that by approaching the topic from multiple perspectives, often times using the input from students as well. In that way, students learn that there is always more than one way to approach a scientific issue. That, of course, is the reason that science is a team sport. By showing multiple perspectives and focusing on multiple aspects, students can find out what they find most interesting, besides what they already know.