**Final report KJM2601 - H23**

I taught this course in extraordinary substitution of the titular of the course. It has been an awkward experience, because at least half of the more than 20 students signed for the course had already attended the class the year before, and were repeating it. Of the few remaining, several of the most interested ones had already taken the course of Quantum Physics at the Physics institute, thus found this course uninteresting due to the excessive overlap with the other one. As an outcome, I found myself teaching to an empty class of 2-4 students (two of which only sporadically attending). Only nine students took the exam, only six delivered, only two passed (two more students will try the continuation exam next week). Considering the poor success rate at the exams in the past year, my view as an “outsider” for this course is that we are in front of a failure. I must say, a well forecasted failure, being this the necessary outcome of a rather illogic structuring of the bachelor program in chemistry, a curriculum of studies that is not built to instill solid foundations in mathematics and physics into the students. It is pitiful, because science is a language that talks mathematics and lies on physics. Unfortunately, teaching physical chemistry at different levels over the years, I keep noticing that most of our students are not comfortable with basic calculus, or with physical concepts as easy as Newton’s laws, not to mention the basics of electrostatics (despite its utmost relevance in chemistry). The problem is clearly not in the students, but in a BcSci in chemistry that delays the teaching of mathematics (thus, detaching it from the topics it should serve), and mortifies the teaching of physics. Without the minimal prerequisites that are a solid handling of calculus, clear understanding of mechanics and electrostatics, and some knowledge of linear optics, how can we expect students to enter into a course like KJM2601 that should take all these insights, and bring them to another level? I do not have an answer for that.

Please note: what I mentioned ahead are not just prerequisites for KJM2601, but they are fundamental concepts for any chemist, if we imagine that a chemist knows about molecular structures, how they are formed, and how they interact, not to say they understand how analytic instrumentation works.

Concluding, in my opinion it is high time that the whole teaching of physical chemistry is rethought and reformed. In the past years, I had already reported some criticalities in the contents between the first and third courses, this experience highlighted more issues also for the second one. Personally, I do think that we should finally decide that chemistry students are whole *science students* and that they deserve to receive an appropriate training in mathematics and physics in the first years of their studies, on par to what is done in top chemistry institutes worldwide. In any case, it is evident that the teachings in physical chemistry arrive too delayed in the schedule (first in the third semester, then a gap of one semester, waiting the 5th semester for the second, and the third only in the 6th semester), with the outcome that those interested students take alternative courses in physics to fill their knowledge gaps, and those less interested are left without proper means to learn anyway something interesting for them.