**Self-evaluation KJM3310/4310 - V2023**

This was third time for the new Physical Chemistry III course. The number of students attending the class was again in line with past years (7 students between the two 33-43 versions).

Based on my experience, the level of the contents, which follow the textbook “Molecular Driving Forces” by Dill&Blomberg, appears appropriate. In particular the required mathematics is not particularly demanding, so that the chemical-physical concepts can be smoothly introduced and reasoned upon. Like last year, the results of the exam were very polarized. Prominently, students with adequate mathematical background, and attending the class, follow the course without problems and perform extremely well at the exam (A, B marks). This year, all students came from the standard chemistry bachelor at UiO. On the contrary, students that had poor attending to the class, performed not so well (D).

Comparing to the past evaluation, I confirm the feeling that the quantity of notions and contents (very practically, the number of book chapters) is excessive compared to the time at disposal. In practice, the current curriculum requires the introduction of a new topics every week. The feeling is a rush through the book that leaves little time for going deeper and reason on basic concepts. I believe that it would be more engaging for the students if the course had a different, slower pace. This implies the necessity of sacrificing some of the contents. Even though I tried to further simplify/cut some contents, anything more significant would require some debate with the other Physical chemistry courses, so to best harmonize the contents and not risk to create knowledge gaps.

This year, we further expanded/refined the contents of computational/numerical simulations where students could explore in more depth the theoretical models studied in the curriculum. I thank the very valuable assistance of PhD candidate Simon Schrader, who took the responsibility of the organization and supervision of the experiences.

I insist on the critical overlap between Phys. Chem I and Phys. Chem. III. I am personally convinced that the traditional approach to thermodynamics as it is currently implemented in PC-I is a **relic of the past** that a modern university curriculum **should dismiss**. Again and again, also this year I collected some **frustration in the students** who felt they had to wait so long as 6 semesters, until they could truly understand things so basic as what truly is entropy, where does the Maxwell Boltzmann distribution come from etc. There is no need to waste time in PC-I on foggy concepts more pertinent to some low-quality steam-punk fiction than to chemistry, instead of using it to explain more appealing topics. In other words, how the microscopic nature of matter in at the basis of macroscopic thermodynamics. I would welcome a serious debate about the organization of the three PC courses, and a major reorganization of their contents to fit the knowledge and needs of XXI century chemistry students.