

Evaluation KEMM07 "Colloidal Domain" autumn 2020

STUDENT RESPONSES

1. Student category (undergraduate or PhD)

Undergrad students: 2

PhD students: 8

2. The goals of this course are that the student should acquire a more profound physico-chemical knowledge within the area of colloid and surface chemistry, and a quantitative understanding of a selection of fundamental phenomena within the subject. Were these goals accomplished? Answer with a grade 0 – 5. Comment if you wish.

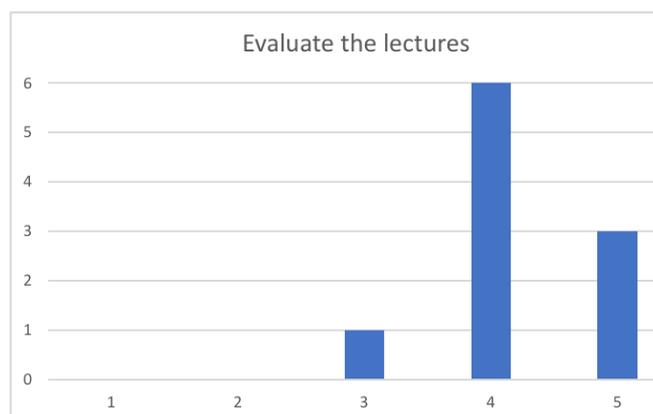


*Two Master students answered.
Their grades were 4 and 5.*

Comments

- (grade 4) I do not have the good ability to use the equations for the quantitative calculation. Also, it will be good if the duration of the course is longer, and there is more homework and discussion part. (PhD student)
- (grade 4) Knowledge in those areas were there, but I found that most of the derivations of certain formulae were not useful in any way. In fact, I personally found them to be confusing and taking up a lot of time. (PhD student)
- (grade 4)- a lot of material in too short a time span. I wish I had more time to fully learn everything, but it was a great course! (Undergraduate student)
- (grade 5) I think it was very good, that some more general concepts in physical chemistry such as the regular solution theory, the chemical potential, the osmotic pressure were also discussed in details (Undergraduate student)

3. Evaluate the lectures by giving a grade 0 – 5. Comment if you wish



Two Master students answered.

Their grades were 4 and 5.

Comments

- (grade 4) it will be great if more question and discussion part is allowed. For some chapter, the reason behind the phenomena is not very clear. (PhD student)
- (grade 3) the lectures are so good, but it seems a little fast and difficult for me to follow because I lack of physical background. (PhD student)
- (grade 4) Sometimes it felt like the lectures were given too chaotic and it was difficult to take notes or to follow. (PhD student)
- (grade 4) mostly very good. For me, the writing of equations on a whiteboard doesn't give anything. Breakout rooms with discussions however are really helpful for both focus and understanding. (PhD student)
- (grade 5) great lectures from great lecturers! Chapter 1,3,5: good amount of detail, well explained concepts; easy to follow and good pace, although sometimes a little slow but that was probably because of the zoom whiteboard; writing on the board - nice. Chapter 2, 8, 10: easy to follow, good speed, sometimes hard to have short discussions on zoom. Chapter 7,11: difficult to know what was said if you missed a lecture, since slides didn't have much text, fast pace - nice! but sometimes hard to follow with little text/key words, some distinction between slides that were talked about vs skipped over should be in the uploaded slides, was sometimes confusing. Chapter 4, 8: sometimes a little slow paced/not 'focused' so hard to follow when what was said didn't match the text in the slides, a lot of text in the slides, sometimes too much to focus on during the lecture, but very good to have when studying for the exam, answered questions and gave important additional insight/information (Undergraduate student)
- (grade 4) varying a bit, mostly very enthusiastic and knowledgeable, it has been a bit tough to do a course completely on zoom, easy to zone during more theoretical parts, very static to watch a 2 hour lecture, maybe force student to stand up every 20 minutes and stretch their backs and neck. Got really problems with my neck during this course. Would have been very nice to have had the lectures recorded for later reference during repetition. (PhD student)
- (grade 4) The lectures were held digitally, and we experienced different techniques from the different lecturers on how to carry out these lectures. The solution of writing on a digital whiteboard 'real-time' was of course very good since in that case we had enough time to write down everything because the teacher was also writing on the screen. The lectures were easy to follow and were straightforward, if one had read the book before, and the lecture was a good summary of the book. Other teachers used ppt slides for their lectures. These lectures were also interesting and they summarized and supplemented the book well. It was impossible for me to take good note of the lectures that were not uploaded on Canvas in advance, and because of that, the lecture was more difficult to follow, because you spent more time with writing. So please, share your ppt-s well before the lectures. (Undergraduate student)

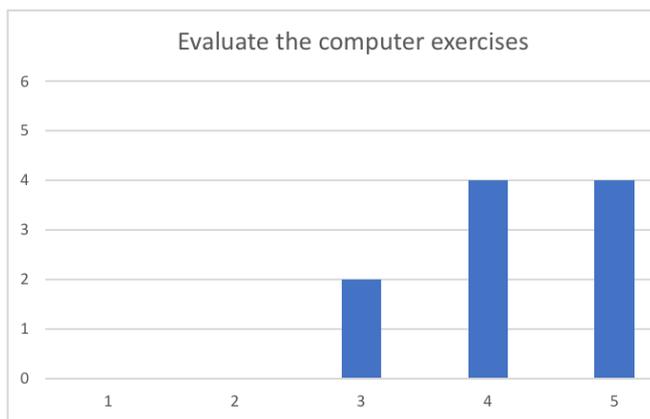
4. Evaluate the lab course by giving a grade 0 – 5. Comment if you wish.

Comments and grades (only undergraduate students did the lab course)

- Grade 4

- Grade 5. All the labs were well organized, the tasks were interesting and they demonstrated some main concepts of the lecture material well. It was also very good that we received detailed feedback to the reports from the lab instructors. In one case (AFM lab), however, the start of the lab was organized such that we didn't even have time to have lunch between the lecture and the lab. There was only 15 minutes between the end of the lecture and the start of the lab, and especially in the case of online teaching, it is definitely not enough to have lunch. It was really inconvenient for us.

5. Evaluate the computer exercises by giving a grade 0 – 5. Comment if you wish.

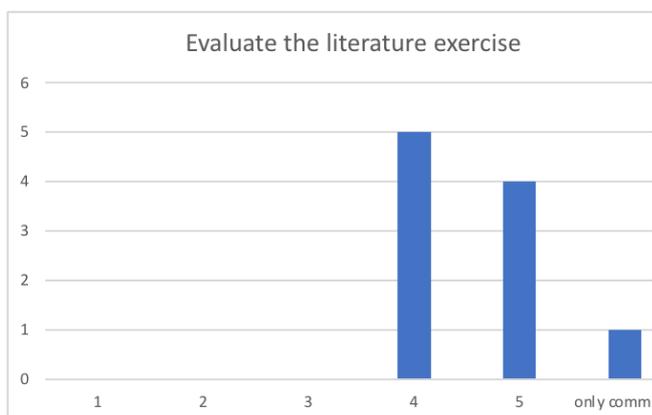


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Comments

- (grade 5) very detailed response and comments (PhD student)
- (grade 4) The first one was great whilst the second one was a bit messy. It was probably due to the fact that one was in person and the other on zoom. It was hard to prepare for the second one since you couldn't access the server yourself nor had a general outline of what to do, which didn't help either. Even though it was a bit messy it was still handled well. (Undergraduate student)
- (grade 5) I think these computer exercises demonstrated some theoretical parts of the material very well, therefore they were very useful to understand these concepts. In the electrostatics part, it was very good that we had the task beforehand, so we could start the task at home before the actual practice, so we could only ask some questions during the practice session. It was also good that we received detailed feedback to our reports from Henrik. (Undergraduate student)
- (grade 4) Was a little bit too much "monkey see monkey do" and getting all of the understanding slowly when writing and complementing the lab reports. But that might be more my fault than the labs for not reading up better beforehand. (PhD student)
- (grade 3) was very nice to get some "hands on" on the otherwise quite abstract electrostatics. The polymer lab was tougher and I think every exercise could have deserved a bit more discussion by the supervisor during and after the lab. But still hard to accomplish through zoom. (PhD student)

6. Evaluate the literature study/presentation by giving a grade 0 – 5. Comment if you wish



*Two Master students answered.
Their grades were 4 and 5.*

Comments

- (grade 5) a good way to understand and apply the learned knowledge (PhD student)
- (grade 4) it's useful to strengthen what I learned from this course, and happy to discuss with classmates and teachers. (PhD student)

- (grade 4). Fortunately, my group had time to meet a couple of times before the presentation and everything worked out well, but I would argue that it was a bit more tight on time than if it had been in person. It was a little harder to communicate and collaborate. (Undergraduate student)
- (grade 5) I think it was a well organized exercise, and the time that we used to complete the task was reasonable. It didn't consume too much time from exam preparation, and also it was enough to create a fair presentation in the groups of three. (Undergraduate student)
- (grade 4) Time slot was more than enough to find something in literature and prepare a presentation. (PhD student)
- (grade 4) Nice to see the applicability of the course and facilitated the learning of some concepts by getting a new approach and real data. Especially the discussions when presenting was nice and helpful. (PhD student)
- (no grade) Very nice to "meet" the other students, sad that one got to know each other just a little bit before the exam. Always nice to get "introduced to the literature", this is something I think should be a part of every course, and is something I feel has been lacking in many other courses that I have previously taken. (PhD student)

7. Evaluate the course administration. Was it easy to get information, and did you get information in time? Please comment

Comments

- Yes, it is easy to get ppt and other study sources. (PhD student)
- I'm not sure, I think so (Undergraduate student)
- When I needed information, I always got it in time. Most of the things were uploaded to Canvas, but when I had a particular question to a teacher, I always got the answer well in time. (Undergraduate student)
- Would have been nice if all lectures were uploaded in advance. This sometimes happened, however. (PhD student)
- The information was always shared well in advance and it was communicated to us in a few ways simultaneously (through announcements in Canvas and during the lectures). (PhD student)
- Yes it worked very well. You got it by mail so you didn't miss anything and got the info directly. At the same time you had everything collected at canvas which was convenient. Maybe some kind of notification when the schedule file was updated could have been nice but most important stuff was announced in parallel so not a big problem. (PhD student)
- info through Canvas worked fine (PhD student)

8. What did you particularly like about the course?

Comments

- The interaction between different chapters, the wide field that it covered. So that I can have some general ideal and a map in mind. (PhD student)
- Everything I learned. The lecturers. For the most part, the book (Undergraduate student)
- Initially I can't follow any teacher of the course because physical chemistry is so strange for me. But when I reviewed the course, I found it's really interesting, and it's a basic for food and biological science. I almost like every part of the course, and mostly interested in thermodynamic and kinetic stability of colloidal particles. It's not easy to understand, but very important for the particle system. The part on Surface is new for me, but also looks interesting. (PhD student)
- Course is well organized. I liked when the theory was supported by the real examples, where it is applicable and how by using theory we can explain and predict different phenomena occurring in nature (biology). Even though, we had just computer exercises due to covid-19, I think these lab/computer exercises are very useful to understand the theory. Once I got to write a report, I got to understand the topic much much better. I found computer modules very helpful to understand the main concepts.

I liked that there were different teachers in the course; all of them were unique, conducting different research and it was interesting to participate in their lectures. (PhD student)

- That the focus was really on the conceptual understanding of the course material and that the exam was focusing on that, too. Therefore, the aim of the course was I think in very good agreement with how the exam was designed. Also, the Colloidal Domain book was very good. It took much effort to read through the whole book in less than two months, but it was worth the effort. (Undergraduate student)

- The use of the computer exercises to give a clearer view on some of the topics that are more difficult to grasp (mainly chapter 3). (PhD student)

- That it was so concept based and so broad. I feel like it patched up about 50% of everything I think I should know that I didn't. Also the concept of following the book so end to end was a bit new and nice. Gave a good structure. (PhD student)

- Enthusiastic lectures, feels like I have received a full and completely new degree in chemistry. The course provided a very nice perspective on many things. (PhD student)

9. What did you particularly dislike about the course?

Comment

- I almost like every part of the course. (PhD student)

- The book was sometimes a source of frustration, for example when trying to understand Flory-Huggins theory. * The proximity of the labs and computer exercises when there were three within a week from each other. It was a bit stressful* That there wasn't as much discussion between students since it was hard to get to know new people at a distance *The lack of follow-up on the student discussion groups that were mentioned during the first week. (Undergraduate student)

- I still don't understand the derivations and equations, and how to derive the equations by myself. Also, not enough time to dive into complicated theory. (PhD student)

- There is nothing specifically I did not like about the course. It was prepared well-done and I am very satisfied the lectures that I got. (PhD student)

- Derivations of formulae that were not necessary in the end. It would be better to only show the necessary ones and explain around them, then upload the derivations for those who want to look at it where it comes from. The book was not particularly great either; it makes assumptions that people know certain things, while this is not always the case. This leads to spending more time trying to figure out how and why. (PhD student)

- I could not find something I dislike about the course. (PhD student)

- Some parts felt a bit boring but that might have been mostly because of lack of theoretical understanding. (PhD student)

- the course was really intense and time consuming, I think it deserves more than only 10 credits. (PhD student)

10. How many hours per week (in average, not only during the last week), did you spend on the course?

Undergraduate students

- 40+, it's hard to estimate

- 40

PhD students

- around 56 hours

- 15 hours

- Since course was everyday (except some days in some weeks), daily it took 3 and half hours I would say: attending course + repeat what we learned during the evening. Per week it is 20 hours I would say.

- 15

- 15-20 h per week

- 30 maybe.

- at least 15 hours.

- max 20 minutes, then short maybe 1 minute brakes. Guided stretching would probably not have been a totally ridiculous idea. If zoom lectures continue in the future we are bound to get a lot of problems with our necks.

11. Do you have any comments on the digital teaching and any suggestions of how to improve the interactions in cases of online teaching?

- I think it will be good if there is more quiz and discussion part for online courses. (PhD student)
- *Always make zoom meetings that automatically mutes students when they enter. This was done in my online course VT20 and greatly minimized disturbances caused by unmuted students. *Provide a general outline with bullet point tasks for the second computer exercise so that students can plan almost exactly how to use the provided Linux commands and come even more prepared. It might help with some of the confusion. (Undergraduate student)
- Partly, I answered this question before (Q3) when I compared how one teacher (writing on the screen) and the other three lecturers (showing ppt-s) held the lectures. I think both solutions are good (and they worked well in this course, too), but in the case of ppt-s, I emphasize again that handing out the ppt-s well before the lecture is of key importance! Of course, lab practices would be almost impossible to carry out online, but it was not the case, fortunately. For the computer exercises, it's not a problem if they are carried out online. (Undergraduate student)
- it's good to me (PhD student)
- I have no comment on this question. (PhD student)
- Maybe at the end of each chapter, there could be a seminar, where students do 10 min presentation about the chosen theoretical topic (kind of teaching your friends) from a particular chapter. In this way get to know each other more and also summarize each chapter, and check how we understood particular topics from the chapter. (PhD student)
- More discussion less equations (PhD student)
- The opportunity to screencast and record the videos should not have been missed, would have been very valuable for the teachers as well as a substitute in the coming years should a teacher be on leave or in other way hindered from doing the lecture. Also very valuable for the student if he/she misses a lecture. (PhD student)

Note: detailed comments on individuals where not included in the overview above.

SUMMARY COMMENTS

The overall impression from the survey is the students are happy / very happy about the course. The feedback indicate that they feel that they have learnt a lot and that they find the combination of different activities and support (book, computer modules, lectures, exercises, computer lab, practical lab, literature exercise, lab reports, oral exam) useful. Some students find some of these activities more useful than others, but overall all the activities seem useful to several students. Some students indicate that they would prefer less mathematics and derivations in the lectures, while others write that they appreciate the detailed handling of thermodynamics and fundamental physical chemistry concepts. With respect to the lectures, some of the teachers write on the zoom "whiteboard", while others use powerpoint presentations, and the students have varying opinions on what they prefer. One student raises criticism that not all material was distributed before-hand, while another student pointed out that it was difficult when the material handed out beforehand was not really agreeing with the lectures, and yet other students felt that the slides contained too little or too much explanations. This feedback partly reflects different teaching styles and that the preferences of the students differ, but based on the overall feedback each teacher can pick up some things that can be improved with respect to the distributed material. This will be discussed in the team of teachers before the next course.

It is pointed out that this was the first time the course was on-line and not in the classroom, and the style of teaching therefore partly differ from "normal" years. As pointed out by several students it was more difficult to get the students involved in discussions during lectures when given in zoom. This also agrees with the feedback from teachers, although there were also several examples of when discussions actually worked rather good. If the course will be given on-line another time, we will work on more using breakout rooms "question breaks" during the lectures, and we will try harder to encourage and facilitate discussion groups among the students between the lectures. It was perceived as very positive that a large fraction of the students kept their camera on during the whole lectures as that helped communication in the group. We did not record the lectures as we

thought that would hamper discussions, but the feedback from the students may indicate that it would have been a good idea to do that anyway. In case we do digital teaching again, we will need to reconsider this and analyze what are the benefits and drawbacks with the recording.