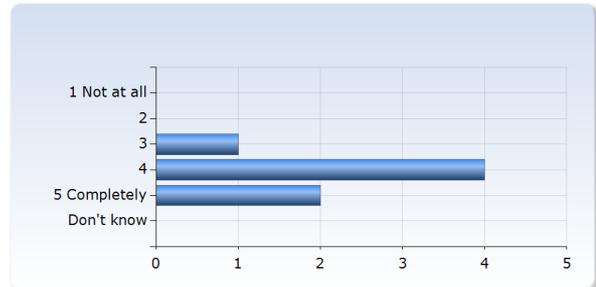


FK5025 - Statistisk mekanik och kondenserad materia

Respondents: 17
Answer Count: 7
Answer Frequency: 41,18 %

5. Overall impression

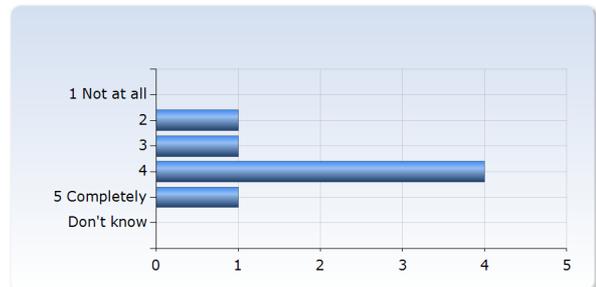
Overall I am satisfied with this course	Number of Responses
1 Not at all	0 (0,0%)
2	0 (0,0%)
3	1 (14,3%)
4	4 (57,1%)
5 Completely	2 (28,6%)
Don't know	0 (0,0%)
Total	7 (100,0%)



6. Student contribution

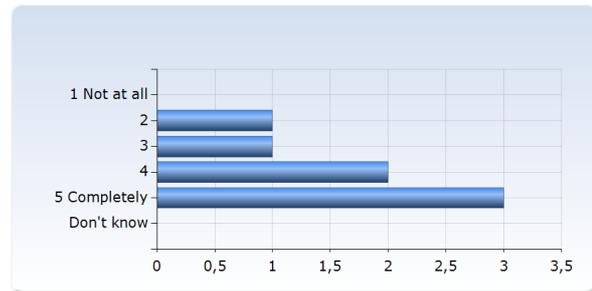
I am satisfied with my own effort in the course

I am satisfied with my own effort in the course	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	1 (14,3%)
4	4 (57,1%)
5 Completely	1 (14,3%)
Don't know	0 (0,0%)
Total	7 (100,0%)



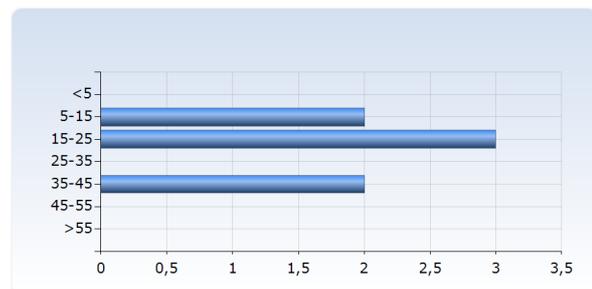
I took responsibility for my own learning in the course

I took responsibility for my own learning in the course	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	1 (14,3%)
4	2 (28,6%)
5 Completely	3 (42,9%)
Don't know	0 (0,0%)
Total	7 (100,0%)



7. Work load

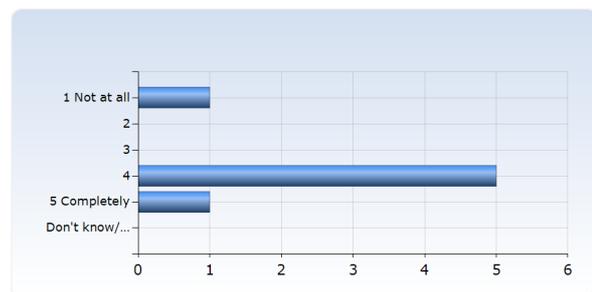
Indicate how many hours per week on average you have spent on the course, including self-studies and scheduled study time	Number of Responses
<5	0 (0,0%)
5-15	2 (28,6%)
15-25	3 (42,9%)
25-35	0 (0,0%)
35-45	2 (28,6%)
45-55	0 (0,0%)
>55	0 (0,0%)
Total	7 (100,0%)



8. Clear aims

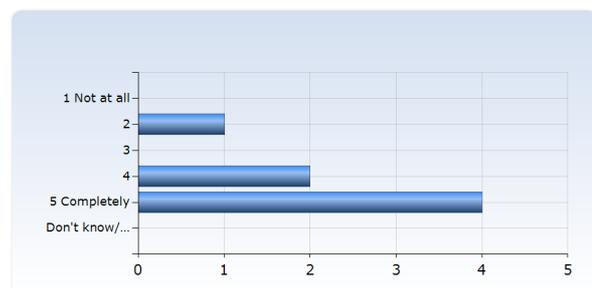
It was clear to me what I was expected to learn

It was clear to me what I was expected to learn	Number of Responses
1 Not at all	1 (14,3%)
2	0 (0,0%)
3	0 (0,0%)
4	5 (71,4%)
5 Completely	1 (14,3%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



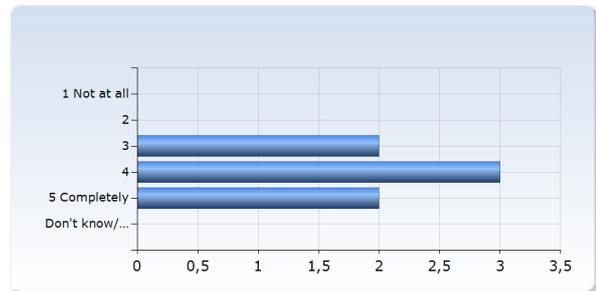
I felt that the course content and teaching methods were relevant to the learning outcomes

I felt that the course content and teaching methods were relevant to the learning outcomes	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	0 (0,0%)
4	2 (28,6%)
5 Completely	4 (57,1%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



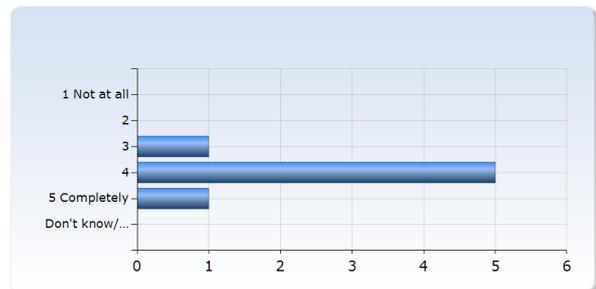
The examination tested how well I had achieved the learning outcomes

The examination tested how well I had achieved the learning outcomes	Number of Responses
1 Not at all	0 (0,0%)
2	0 (0,0%)
3	2 (28,6%)
4	3 (42,9%)
5 Completely	2 (28,6%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



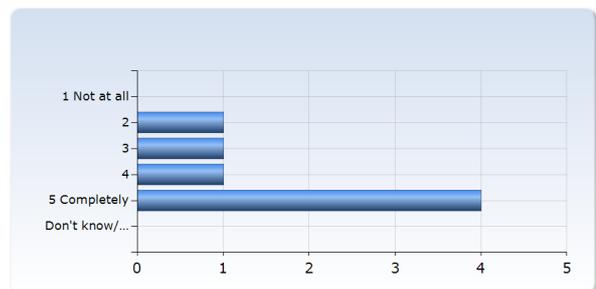
The course corresponded to my expectations

The course corresponded to my expectations	Number of Responses
1 Not at all	0 (0,0%)
2	0 (0,0%)
3	1 (14,3%)
4	5 (71,4%)
5 Completely	1 (14,3%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



I feel that I will have use of what I have learnt after my studies

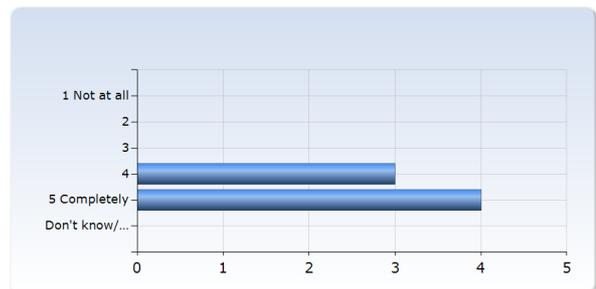
I feel that I will have use of what I have learnt after my studies	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	1 (14,3%)
4	1 (14,3%)
5 Completely	4 (57,1%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



9. Good teaching

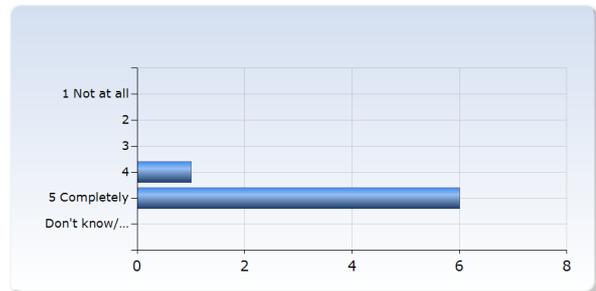
The course prerequisites were sufficient to follow the course

The course prerequisites were sufficient to follow the course	Number of Responses
1 Not at all	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	3 (42,9%)
5 Completely	4 (57,1%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



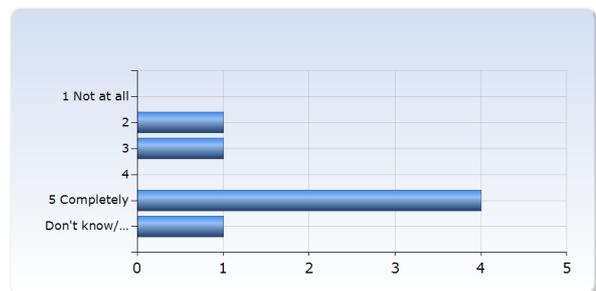
I felt that the course was well structured

I felt that the course was well structured	Number of Responses
1 Not at all	0 (0,0%)
2	0 (0,0%)
3	0 (0,0%)
4	1 (14,3%)
5 Completely	6 (85,7%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



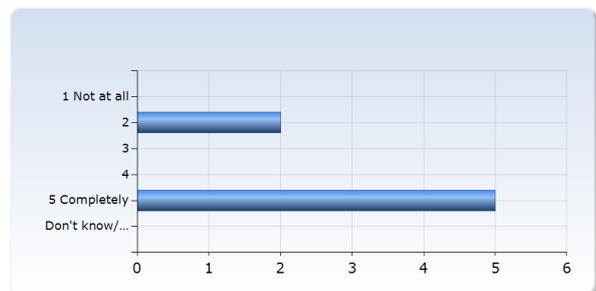
I felt that the teachers have helped me to reach the learning outcomes

I felt that the teachers have helped me to reach the learning outcomes	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	1 (14,3%)
4	0 (0,0%)
5 Completely	4 (57,1%)
Don't know/ Not relevant	1 (14,3%)
Total	7 (100,0%)



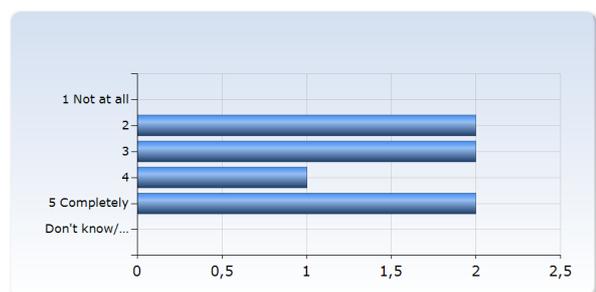
I could understand what was being taught

I could understand what was being taught	Number of Responses
1 Not at all	0 (0,0%)
2	2 (28,6%)
3	0 (0,0%)
4	0 (0,0%)
5 Completely	5 (71,4%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



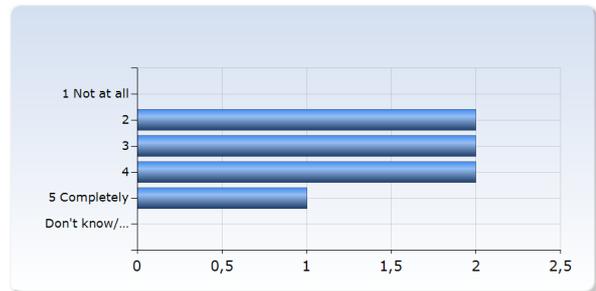
I have received constructive feedback on my performance

I have received constructive feedback on my performance	Number of Responses
1 Not at all	0 (0,0%)
2	2 (28,6%)
3	2 (28,6%)
4	1 (14,3%)
5 Completely	2 (28,6%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



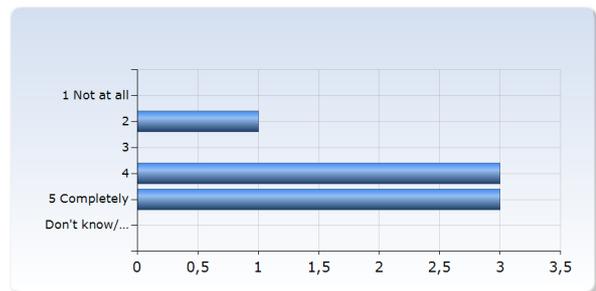
I was encouraged to reflect on my learning during the course

I was encouraged to reflect on my learning during the course	Number of Responses
1 Not at all	0 (0,0%)
2	2 (28,6%)
3	2 (28,6%)
4	2 (28,6%)
5 Completely	1 (14,3%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



The course material helped me in my work to achieve the learning outcomes (literature, e-resources etc.)

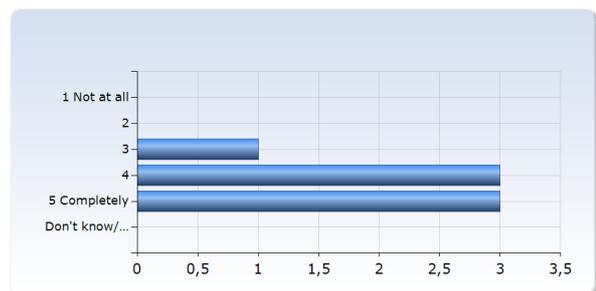
The course material helped me in my work to achieve the learning outcomes (literature, e-resources etc.)	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	0 (0,0%)
4	3 (42,9%)
5 Completely	3 (42,9%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



10. Administration and study environment

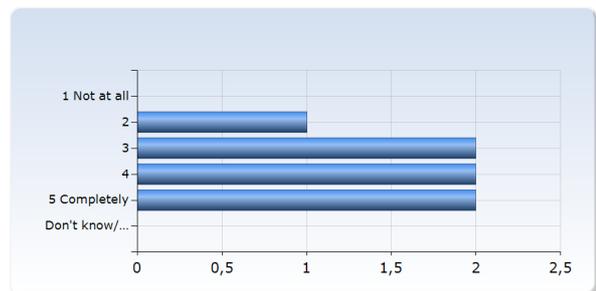
I felt that the course was well organized

I felt that the course was well organized	Number of Responses
1 Not at all	0 (0,0%)
2	0 (0,0%)
3	1 (14,3%)
4	3 (42,9%)
5 Completely	3 (42,9%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



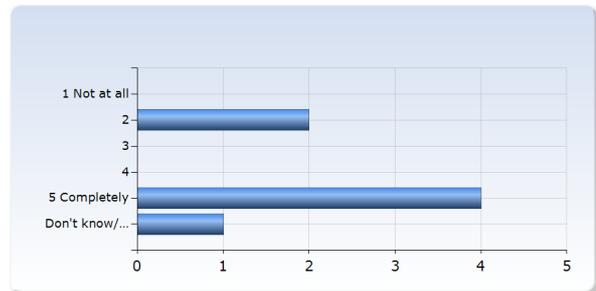
I have been able to find the information I felt I needed before and during the course

I have been able to find the information I felt I needed before and during the course	Number of Responses
1 Not at all	0 (0,0%)
2	1 (14,3%)
3	2 (28,6%)
4	2 (28,6%)
5 Completely	2 (28,6%)
Don't know/ Not relevant	0 (0,0%)
Total	7 (100,0%)



I was able to get support when I needed it

I was able to get support when I needed it	Number of Responses
1 Not at all	0 (0,0%)
2	2 (28,6%)
3	0 (0,0%)
4	0 (0,0%)
5 Completely	4 (57,1%)
Don't know/ Not relevant	1 (14,3%)
Total	7 (100,0%)



Course Summary for FK5025 HT 2016

HT 2016 was the first time this course was taught in the third year bachelor's program. This course however has a large overlap with FK8008, which is going to be taught, for the last time, during VT 2017.

There were about 17 students registered for this course. About 12-14 attended lecture sessions regularly, submitted the hand-ins and 12 students took the final exam. Attendance in problem sessions was typically less. The lab session was attended and completed by 14 students. In general, I found all the students both interested and participative.

This course is supposed to teach *both* Statistical Mechanics as well as Condensed Matter. The idea was to start with Statistical Mechanics where we talk about partition functions for the ideal gas, free bosons and fermions, and develop simple applications of these concepts, such as derive the black-body radiation spectrum and calculate the specific heat for ideal gases, free electrons, and solids. All these are assumed as pre-requisites even in Simon's book (the Oxford Solid State Basics) which was one of the textbooks used in this course (for the condensed matter part). So it made sense to do the Statistical Mechanics part of the course first.

The condensed matter part, it was originally thought, could then talk about Brillouin zones, the reciprocal lattice, more detailed calculations of phonons in crystals (complemented by a laboratory session on lattice vibrations), electrons in periodic potentials and band structure.

This was the rough ordering of topics that I followed in the course. However, in the condensed matter part I did not get as far as the latter two topics. Even the former could be done only in one-dimension (as Simon does in his book). All in all, we used only two short chapters from Simon (two other chapters in Simon have a large overlap with the topics we followed from Schroeder, so I am not counting them).

All the students seem to feel, from the evaluation, that the course was well-structured and that the topics fitted well together. However, I still feel we did too little in the condensed matter part (to justify calling this a course on statistical physics *and* condensed matter!). This was primarily because teaching both subjects in just one course implies too much content to finish in the 4 weeks this course spreads over. Even though this is the only course the students are doing over this period, there are plenty of conceptual points which take a little time to understand, especially as most of the students have done very little statistical mechanics before this. This is also reflected in the course evaluation, in which some of the students have written that it would be good with more time for this course so that its not necessary to rush through it. If we should do a little more condensed matter, we would either need to decrease the statistical mechanics part or need more lecture sessions. The former is not an option in my opinion since all the topics we cover

here are essential parts of an undergraduate education in physics! If we should instead increase the number of lectures, we would only be addressing those minority of students who are able to take in this extra content without feeling that it is too rushed. On the other hand, it is only two (out of seven) students who say that they have spent 40 hours per week on this course. So we definitely have to figure out how to make the students work harder!

The course literature was chosen well and seems to have been (mostly) appreciated from the results of the survey. The only negative point about the course literature this year was the unavailability of Schroeder. Most students had to make alternative arrangements since it was not available in any of the book stores or online book sites. This happened only this year though because of a change in the publisher of this book. The second book by Simon was readily available and very inexpensive. It has a very pedagogical style which was appreciated by most students. All the more pity therefore that we managed to cover only two new chapters from this book!

Most students seem to feel that the lectures were good, for which I am glad! About the exercise and laboratory session, their opinions are more spread. We will do our best to address their criticisms, next time this course is given. It is understood however, that teaching assistants, being graduate students, have less experience than the lecturers, when it comes to teaching!

Apart from the problems solved in the problem sessions, the students also had one (longish) question to hand in, every 6 days roughly. There was a bonus connected to good performance in these, which certainly helped many students in the exam.

Most students seem to think that the hand-ins were either very good or acceptable. One student feels there was too little time to do them. But that is unavoidable in such a short course. Another student seems to feel however that they should have been a little harder. This is the first time I've got that feedback! I am not sure I will make them any harder in the future, though I'll probably change them a little to address those issues that many of the students found difficult this time. I definitely intend to continue with the hand-ins (as I have done in all the courses I have taught at Fysikum), since I find this helps the students with getting very quickly into the material, as well as informing them about the level at which I expect them to understand the course. I tried to design the hand-ins based on the learning outcomes. And the exam also tested the students on these (as most of them seem to agree).

This also brings me to two points where the opinions of the students are more spread- the questions about whether they received constructive feedback on their performance and whether they were asked to reflect on their learning during the course! There was no time to discuss individually their performance in the hand-ins, but perhaps that's something we should keep in mind for the future. In addition I have to think about how to make the students reflect on their learning besides repeating concepts from previous lectures, asking questions in class or pointing out issues that could be confusing, as I normally do

in each lecture.

The other point where the students opinion is a little spread is regarding whether they were able to obtain the information they needed before and during the course. The course web page went up the morning the course began, as one of the students has pointed out (and this is typically later than I usually do it). The course web page on the Fysikum web site however, which had been updated two months before the course started, had most of the information the students could need before the course (the time table, books etc). However, even so, next time I will try and have the course web page up earlier. The format of the web page was generally considered satisfactory I think, so I will continue to use this in the future.

For the results in the exam, out of the 12 who took the exam, 4 failed, 2 got E's (one after first getting an F_x and then complementing with a few take-home exercises), 1 got a D, 2 got C's and three got A's. These results are in keeping with what I've noticed when teaching FK8008. On the whole I thought this class extremely well-motivated and interested, so I would have been happier with a few more grades in the middle! I will try and think of how this could be achieved, perhaps in conjunction with making the students work harder and reflect more on their learning.

Supriya Krishnamurthy