Course Evaluation for Subatomic Physics SH2103, Autumn 2014.

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Self Reflection - Jonas Strandberg

This year was the first year I was involved in the subatomic physics course as a teacher and course responsible. This self reflection is written in December 2014, after the last lecture but before the students have been given their exam and also before they have filled our their course evaluations. Therefore, the goal here is to write down my own reflections before seeing how the students have perceived the course.

Course Material

The work load has been very high during the three-four weeks I have been actively teaching, since there are three lectures per week and it is the first time I give the course I have been working more than 40 hours per week with the preparations and the classes. It also happened that unforeseen circumstances (Ph.D. students finishing their theses) prevented me from preparing as much in advance as I would have wanted. If I had not given the Experimental Particle Physics course during the last couple of years, and was able to re-use some of that material, it would not have been possible to complete everything in time while maintaining the standard. That said, now there is a structure to the particle physics part of the subatomic course and I have a clear plan for how the course in Particle Physics (SH2203) next year is going to build on this course. It will be necessary to prepare some new material for the SH2203 next year though so as not to repeat exactly what was discussed in the subatomic physics course.

The first time I met the students (Lecture 1) I informed them that I was new in the course and that therefore they should expect (and hopefully accept) some beginners mistakes and logistical problems that we would have to solve during course. I must say that there has not been hardly any complaints from the students, so most things have developed smoothly from an organisational point of view.

The material for all lectures have been made from scratch, and is now tailored to the subatomic course. The lab in particle physics has not been updated, we used the same version as last year. The lab can certainly be improved, but my impression was that it was not terrible and there simply was no time to prepare a new lab this year. It will be interesting to see the student evaluations for the lab, and updating the lab should be on the to-do list for upcoming years.

One lecture was cancelled this year due to illness. It was possible to accommodate this in the curriculum by reducing the amount of beyond the standard model content, but next year this should be slightly enlarged and the time spent on the electroweak unification and the Higgs boson can also be expanded. Also next year the LHC is running again, so some very fresh content on the latest results would be nice to include in the extra time.

Lectures

The lectures used my usual mix of slides and derivations on the blackboard. I am comfortable teaching this way, the slides are there to show important plots and pictures and the blackboard slows down the tempo and allows for more of a discussion of the topics (although the students are generally quiet and I am mostly arguing the points myself).

The lectures went ok from my perspective, we will see what the students say later. Generally the time allocation was good, and I was happy with the order of the material. I think there is a clear path through the material, which does not follow the historical order but does mention historically important points when some subject is discussed. I think the SH2203 course can be improved from

adapting some of the order used this year in SH2103, which is reached through the experience of teaching SH2203. I am starting to get comfortable with this layout, and most of the time concepts are introduced in a way which allows them to build on each other and draw parallells.

Examination

At the time of writing this, the examination is still to come. The lab reports are due today, and the exam is next year. One reflection I have already, comparing this course to SH2203, is that having an exam as the main examination makes it harder for me to get to know the students during the course. In SH2203, where the main examination is three sets of extensive home assignments interspaced throughout the course, I get a feeling for each student (names and skills) much earlier during the course whereas now I still do not know the names of the students.

After the exam is done, my thoughts are that I made it slightly too easy but it is hard to find the right difficulty level the first time.

The Book

We used Martin “Nuclear and Particle Physics”, and I have mixed feelings about the book. I think it is ok, but the particle physics part is better explained in Martin&Shaw, which is used for SH2203. I am contemplating changing course book for SH2203 to some other more theoretical book though, and this will leave a void when it comes to the experimental description (which is the strength of Martin’s books). I do not have a clear solution, but it is worth thinking about for the future.

The Room

We were most lectures in FE21, and some lectures in FB55. While I was initially sceptic to FE21, without windows, it is actually a better lecture room concerning the projector and blackboard. They are placed in a way that it is straightforward to mix projected slides and writing on the blackboard. In FB55 the projector project on a roll-down screen which covers much more of all the blackboards. So FE21 is actually a good room for this course, when using my teaching style.

Evaluation of the Student Responses - 2015

Two students were overall negative to most aspects of the course, and also noted that they had no interest in the subject (and that it did not inspire to further studies in the subject). They probably took the course because it is mandatory for the subatomic physics track. Among the remaining students the responses were overall positive to most aspects.

The feedback on the book and the lectures were mostly positive, but with a wide range of answers (from less good to very good). A few students thought the lectures were less good in either the nuclear or particle physics parts, most answers indicated a general happiness with the lectures though.

The labs, both nuclear and particle, got very good reviews and the students felt they helped learning the course material. A few students noted that the labs were the only time they were forced to work with the course material before studying for the exam. This is something that it would be good to improve for future years, that there are some exercises or something during the course (even if voluntary). Ayse and Jonas discussed this, and both agree that this is the main target for improvement for next year’s course. Some home exercises, maybe giving bonus points for the exam, would be useful to introduce in the course.

Appendix - Course evaluation form

What is your opinion about the course literature concerning the nuclear physics part? Does it reflect what is taught during class?
[ ] Very good
[ ] Good
[ ] OK
[ ] Less good
[ ] Bad
Comments and suggested improvements:

What is your opinion about the course literature concerning the particle physics part? Does it reflect what is taught during class?
[ ] Very good
[ ] Good
[ ] OK
[ ] Less good
[ ] Bad
Comments and suggested improvements:

What is your opinion about the lectures in the nuclear physics part? (Inspiring? Covers the topic? Makes the topic understandable?)
[ ] Very good
[ ] Good
[ ] OK
[ ] Less good
Comments and suggested improvements:

What is your opinion about the lectures in the particle physics part?
(Inspiring? Covers the topic? Makes the topic understandable?)
[ ] Very good
[ ] Good
[ ] OK
[ ] Less good
Comments and suggested improvements:

What is your opinion about the nuclear physics laboratory exercises as a learning aid?
[ ] Very good and useful
[ ] Good
[ ] OK
[ ] Less good
[ ] Bad or not at all useful
Comments and suggested improvements:

What is your opinion about the particle physics computer based laboratory exercise as a learning aid?
[ ] Very good and useful
[ ] Good
[ ] OK
[ ] Less good
[ ] Bad or not at all useful
Comments and suggested improvements:

What is your opinion about the course level, compared to your previous knowledge?
[ ] Very good, I really learnt a lot and had the right amount of previous knowledge
[ ] Good
[ ] OK

[ ] Less good, I learnt a few new things or it was a bit too difficult
[ ] I knew it all before
[ ] It was far too difficult
Comments and suggested improvements:

Did the course inspire to future studies or increased you interest in the field?
[ ] Yes
[ ] Not really
[ ] Not at all
Comments and suggested improvements:

How was your overall impression of the course?
[ ] Very good
[ ] Good
[ ] OK
[ ] Less good
[ ] Bad
Comments and suggested improvements:

Any other comments or suggested improvements for the future?