Course Evaluation for Subatomic Physics SH2103, Autumn 2018.

Introduction

A very large number of students took the course this year, which made the workload on the teachers higher than usual. Coupled with my personal situation, with an extremely high workload as a coordinator of my Higgs analysis group and many other time consuming commitments, has had me just trying to “keep my head above the water”. It has been a struggle to just complete the mandatory course moment, and I have routinely logged weeks with much more than 40 hours of work.

Nevertheless, one substantial renewal of the course was made this year, introducing a completely new laboration for the particle physics part.

Self Reflection

The lectures were ok, there was no problem with the larger group there. The additional workload mainly came in from communication about the laboration (given that it was new for this year) and correction of reports and exams. The lectures followed the structure from last year, so there is not too much to reflect on that. They are generally good, but if there is a slight change in topics of the course next year (introducing something new for example), naturally they would need to be updated.

Regarding the lab, this year it was very similar to the lab developed mainly by my PhD student Edvin Sidebo for the modern physics (SH1015) course, with some small updates by me to increase the difficulty and scope a little bit and to make significant changes to the documentation and information about the lab compared to SH1015. Next year, further modifications need to be made to the lab, so that it becomes more of an extension of the SH1015 lab with only minimal overlaps in the tasks (the idea being that students should be familiar with the tools and data format from SH1015, but will be assigned more advanced tasks with a higher degree of statistical analysis needed in the SH2103 course).

For next year

As mentioned above, the main development that needs to happen next year is to develop the lab further. The student analysis should be expanded to include additional particles such as W bosons (which allows for discussing the concept of missing transverse energy) or even Higgs bosons (but there is no sensitivity given the small dataset). Furthermore, the fit should involve different fitting functions, and perhaps also with the students having to develop the more advanced fit completely by themselves (no example code provided). Another interesting idea would be to have a larger introduction to using Git, to introduce the students to modern version control for software (but it probably gets too complicated and is somewhat of a sidetrack from the focus of the course).