

## Experiment Progress Report

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### Experiment: Discovering the Higgs Boson

Write at least 3 bullets under each point below.

1. What have you done over the past week?
  - Mostly "administrative" work. We have collected the needed documents, setup out GitHub repository
  - We have begun a high level outline of the experiment and created a sort of "to-do" list for the lab
  - Find the most straight forward sources for this lab, which I found to be ATLAS open data.
2. What are your achievements so far?
  - Download the python notebook for Higgs Boson analysis
  - Ran the notebook and study the the math that goes into the analysis
  - Learning the physics concepts and analysis techniques
3. What problems did you run into over the past week?
  - Reading the guide and background on the Higgs Boson is tough - I am unfamiliar with a lot of the language and details of Particle Physics such as bosons or leptons
  - There are too many tutorials and I'm confused on what I should use
  - The computational time is slow - need to look into improving this
4. What questions do you have about your experiment/analysis/interpretation/...?
  - Where can I find additional background information on the Higgs particle? I think it would be very useful for the introduction of the experiment
  - Particle Physicists measure masses/energies in MeV, GeV, TeV, etc. This is measurement include the rest mass and "kinetic energy" of the particle? In other words, what does a 7 TeV particle mean?
  - Do I have to use the same data set as the original discovery? or I can use any data sets to rediscover the Higgs Boson?
5. What is your plan for next week? Provide a detailed timeline with goals and dates.
  - Finish introduction of paper, begin methodology and discussion sections by 12/1
  - Have walked through the CERN CMS collaboration paper and veiwed
  - Run the analysis and adjust the parameters