Homework 1, due Friday, 11 October at 9:00am

Instructions: Submit your homework either by printing out a handcopy and stapling all pages together, or by emailing a **single** pdf to gherczeg1@gmail.com. Other formats and multile pdf files will not be accepted. Remember to put your name (in pinyin) on your homework. No late homework will be accepted.
This homework i worth 50% of a normal homework.

0. Reading Pre-View: Onno Pols, chapter 1-2.

1. Programming (0 pts): Python is quickly becoming the language that every young astronomer is using. You will need to use some language in your research. Install and learn Python! You can find introductory materials here:
http://www.astrobetter.com/wiki/python
and
https://github.com/jakevdp

1. Stellar Spectra (20 pts): LAMOST is a telescope at Xinglong Observatory that has produced millions of optical spectra. Data is available to everyone and is located at: https://dr5.lamost.org/
Pick a stellar spectrum from LAMOST. You may need to sign up for an account. Select a spectrum with signal-to-noise>20 at 5000 Å. You may be asked to show your spectrum and describe the star to the class.

a: Plot the spectrum in python. Hand in a printout of the code you used to plot the spectrum.

b: In your plot, mark at least 5 important spectral features (do this in your plotting program, not by hand.)

c: What kind of star did you choose? Use the features marked in **b** to provide support your answer.

2. Pollution in Beijing: python and plotting practices (30pts): Air quality indicies are now easy to access. Until a few years ago ,air quality was recorded at the US embassy in Beijing. The website young-0.com compiles this data.
I have placed historical data of 2.5 micro-sized particles at:
https://kiaa.pku.edu.cn/~gherczeg/stellar/aqi.txt
This data is current up until today's lecture. Analyze and describe this data. Tell me some interesting things in this dataset. Is pollution getting better ot worse? Use python and turn in a copy of any code that you write.