

**Gaussian Process Lab**  
**Bayesian Computing for Astronomical Data Analysis 2014**  
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For this lab, we'll be running an IPython notebook in an interactive job on the Lion-XV cluster. Most of the instructions are there but we have to play a little bit of SSH magic to get this to work properly. In all of the steps below, change `PORT` to your unique assigned port number.

First, you need to SSH into the login node and create an SSH tunnel to forward the correct port back to your local machine. To do this, run the following command from your local terminal (don't forget to substitute the correct port number and your user name):

```
# On your local machine:  
ssh -L PORT:localhost:PORT USER@lionxv.rcc.psu.edu
```

On the cluster, `cd` into a work directory and grab the code that you'll need from the [GitHub repository](#):

```
# On the cluster login node:  
cd  
mkdir work  
cd work  
git clone https://github.com/dfm/gp  
cd gp
```

Then we'll start up an interactive job using PBS (asking for 2 hours just to be safe):

```
# On the cluster login node:  
qsub -I -l nodes=1:ppn=1 -l walltime=2:00:00 -q astro-seminar
```

Once that job starts up, load the correct Python module, and `cd` into the directory the job was submitted from:

```
# In the interactive job:  
module load python/2.7.3  
cd $PBS_O_WORKDIR
```

Start a "reverse" SSH tunnel (trust me on this one; remember to change the port number):

```
# In the interactive job:  
ssh -f -N -R PORT:127.0.0.1:PORT lionxv.rcc.psu.edu
```

Then start up IPython (the port... remember):

```
ipython notebook --no-browser --matplotlib=inline --port=PORT
```

Finally, on your local machine, open up a web browser and point it at the URL:  
<http://localhost:PORT> (replacing `PORT` with the right number).

Click on `worksheet.ipynb` to open an IPython workbook that will provide the rest of the instructions.