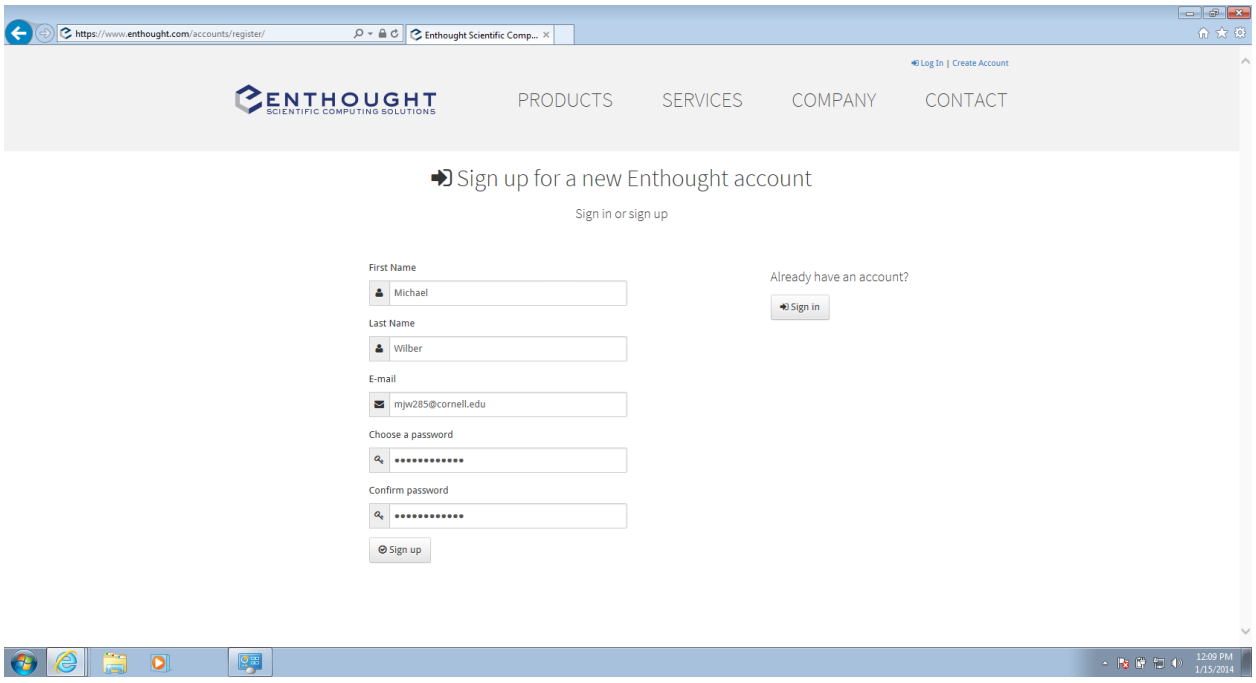
This document walks you through the process of setting up a good Python environment with all the packages you need for the Modern Analytics course.

This semester, we will be trying out Enthought Canopy, a commercial Python distribution that makes it easy to set up Python and install Python packages. Though Python and all of its packages are freely available and open source, Canopy takes the hard work of setting them all up and packaging them for you. It's free for Cornell students and anyone else with a .edu email address.

You don't have to use Canopy, but you do need a working Python with working packages, and this method is one of the easiest ways to set everything up.

Step 1: Create an Enthought account and request an academic license

You must create an Enthought account to download all the good packages, sorry! Use your Cornell email address to register at https://www.enthought.com/accounts/register/



Check your email, click the registration verification link, and return to Enthought's web site.

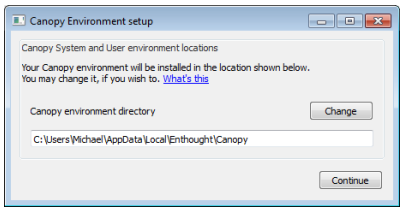
Once you have an account, request an academic license: https://www.enthought.com/products/canopy/academic/ After clicking the giant button, it should immediately say "Congratulations! You have been granted an academic license valid for one

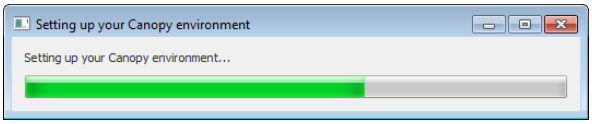
year."

Step 2: Download Canopy

"Canopy" is the name of the Enthought IDE and package manager. Head to https://www.enthought.com/downloads and download and install the appropriate version of Canopy for your system.

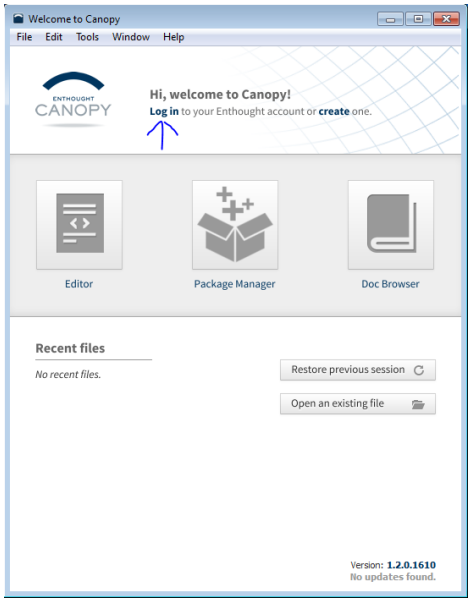
The first time you run Canopy, it will then download and set up a Python environment. This takes a long time (~10 minutes)





Log into Canopy and install some packages!

After launching Canopy, you will see this screen:



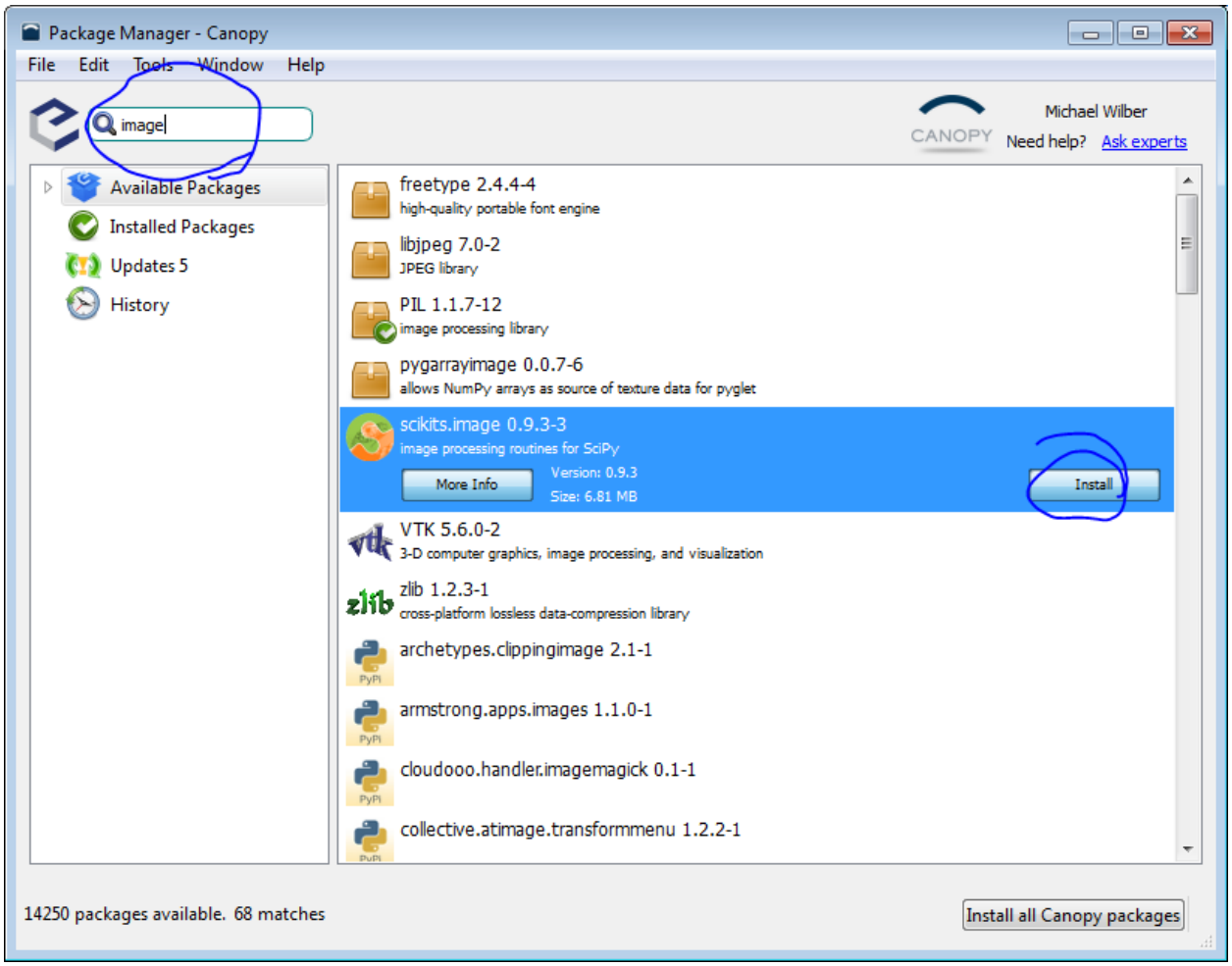
Click "Log In" and enter your username and password.

To install packages, pick "Package Manager." Search for and install the following packages:

- scikits.image
- scikit_learn

Also install the following, if they are not included:

- numpy
- scipy
- matplotlib

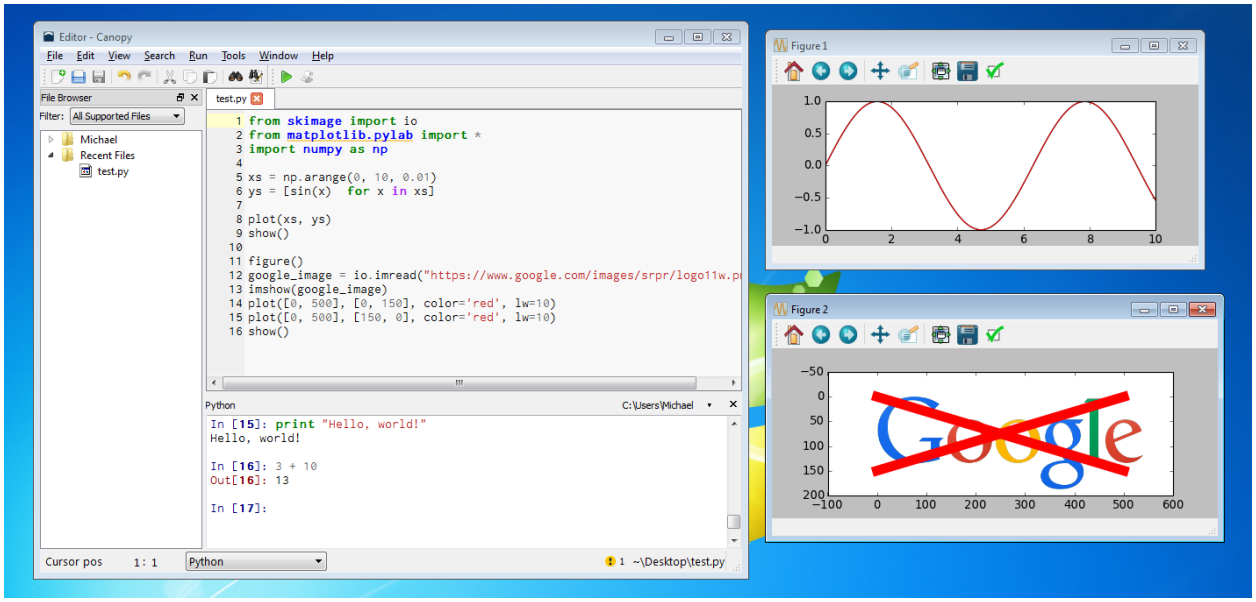


Test out Python with the Canopy IDE!

Now that you have Python and all of the relevant packages, you have two environments available to you. The first is Canopy, which provides a traditional editor similar to other IDEs. The interface is split into two panes: code on the top and an interactive Python shell on the bottom.

Try copy+pasting the following code into the editor and see whether it works!

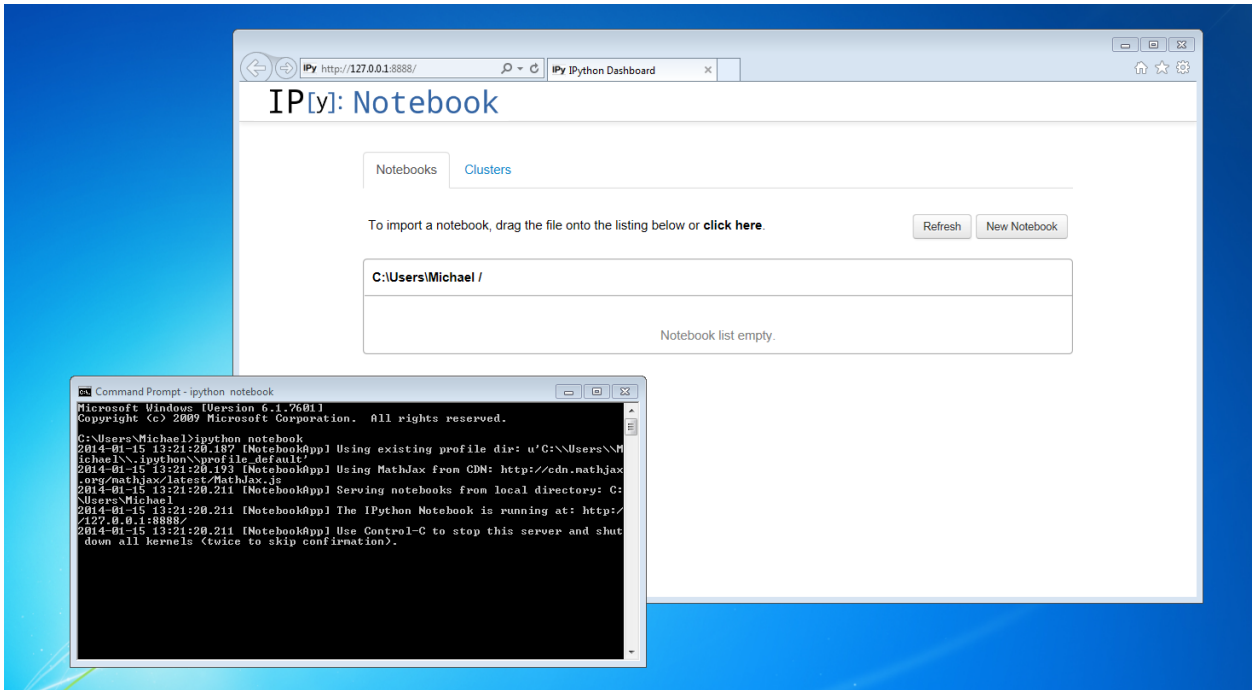
```
from skimage import io
from matplotlib.pylab import *
import numpy as np

xs = np.arange(0, 10, 0.01)
ys = [sin(x) for x in xs]
plot(xs, ys)
show()

figure()
google_image =
io.imread("https://www.google.com/images/srpr/logo11w.png")
imshow(google_image)
plot([0, 500], [0, 150], color='red', lw=10)
plot([0, 500], [150, 0], color='red', lw=10)
show()
```

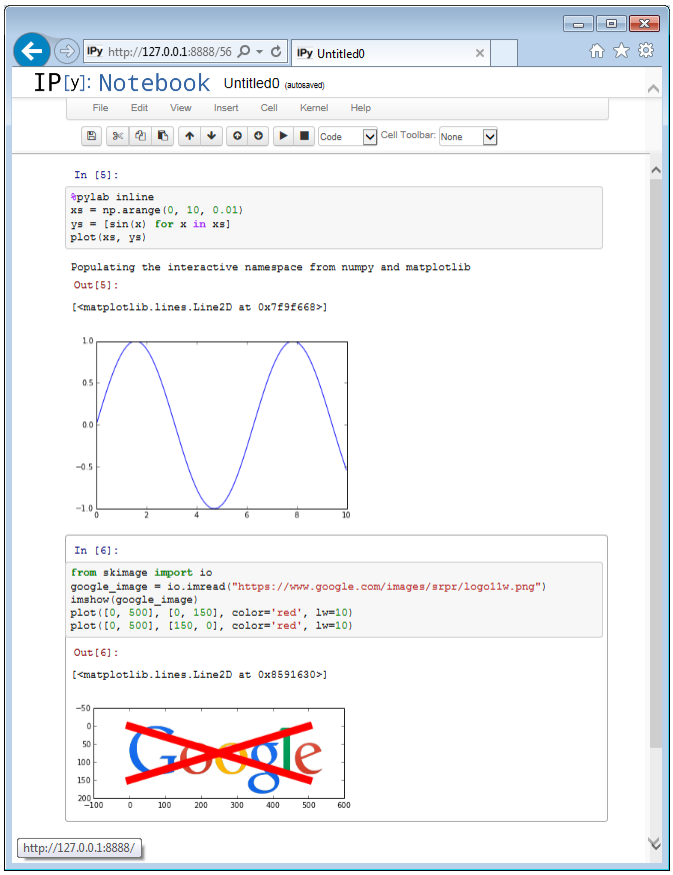


(Optional) Try Python from the IPython Notebook

Another way to use Python is from the IPython Notebook, which Enthought sets up for you. IPython Notebook is a web-based editing environment that makes it easy to test code and explore things. Try both Canopy and IPython out too see which you prefer.

To use IPython Notebook, open up a command prompt and run “ipython notebook”. Your web browser will pop up.





Once you have a notebook session, create a new notebook.

During your editing session, you will be creating several “cells”, each representing a block of Python code. Cells are merely groups of Python statements; evaluating/running a cell simply means running the statements within. Paste the following into a cell:

```
%pylab inline
xs = np.arange(0, 10, 0.01)
ys = [sin(x) for x in xs]
plot(xs, ys)
```

Press Ctrl+Enter to evaluate it, or click the Play button.

Create a new cell and paste the following:

```
from skimage import io
google_image =
io.imread("https://www.google.com/images/srpr/logo11w.png")
imshow(google_image)
plot([0, 500], [0, 150], color='red', lw=10)
plot([0, 500], [150, 0], color='red', lw=10)
```

You can leave the notebook by pressing Ctrl+C in the command prompt.