

Jupyter Notebooks and Miscellaneous Extras

What is a Jupyter Notebook

- Document containing both code (e.g. python) and rich text elements (figures, equations, text, etc...)
- Allows for a cohesive environment for presenting and working with data
- Jupyter is a 'loose acronym' meaning Julia, Python and R; Other languages are supported as well

Running Jupyter Notebooks

- Make sure Jupyter is installed (obviously)

- Cmd line

```
>jupyter notebook
```

OR

```
>jupyter notebook 'name of notebook'
```

- Notebook files end in .ipynb

- If no notebook is specified, opens the Notebook Dashboard

- Numerous shortcuts listed in 'Jupyter-Shortcuts.pdf'

Notebook Dashboard

•Used for opening individual notebooks from list, and managing kernels (computational engines).

 jupyter

Logout

FilesRunningClusters

DuplicateShutdownViewEdit

UploadNew

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Name

Last Modified

<input type="checkbox"/>	code	a year ago
<input type="checkbox"/>	data	a year ago
<input type="checkbox"/>	figures	10 months ago
<input type="checkbox"/>	images	a year ago
<input type="checkbox"/>	BasicStats.ipynb	a year ago
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<input type="checkbox"/>	Classification.ipynb	10 months ago
<input type="checkbox"/>	Classification2.ipynb	10 months ago
<input type="checkbox"/>	Clustering.ipynb	a year ago
<input type="checkbox"/>	DimensionReduction.ipynb	a year ago
<input type="checkbox"/>	HistogramExample.ipynb	a year ago
<input type="checkbox"/>	Inference.ipynb	a year ago
<input type="checkbox"/>	Inference2.ipynb	a year ago
<input checked="" type="checkbox"/>	InitialSetup.ipynb	Running 17 minutes ago

Example Notebooks – Curve Fitting

- Use `scipy.optimize` from the `scipy` library
- Open `ErrorEllipse.ipynb` for illustration of technique

Example Notebooks - Pandas

- Pandas is an open source library for high-performance data structure and data analysis
- Simple library to install and initialize

```
>pip install pandas
```

```
>import pandas
```
- Open PandasIntro.ipynb for illustration of technique

Exporting Notebooks

•Command line prompt for turning a notebook into pdf/latex file/presentation slides/.py script/etc...

•Commands:

```
>jupyter nbconvert --to script 'filename'  
>jupyter nbconvert --to pdf 'filename'  
>jupyter nbconvert --to latex 'filename'  
>jupyter nbconvert --to html 'filename'  
>jupyter nbconvert --to slides 'filename'  
...
```

Exporting Notebooks

- Example Notebook from Josh Wall:
Homework_1.ipynb
- Turned into PDF
- Turned into TeX file
- NOTE: Setting this up can be a pain, is OS dependent, and will require some tinkering to install the proper libraries in the proper path structure.