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).

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.