[To run the Slide]

ipython nbconvert --to slides ./Stochastic\_Processes\_week01\_1.ipynb  --template slides\_reveal.tpl --post serve

**Note 1**

* In this course, we will use the Jupyter notebook as our programming environment.
* It is freely available for Windows, Mac, and Linux through the Anaconda Python Distribution.
* In this plot, I will explain how to install and use the Jupyter notebook in a step-by-step manner to create some common visualizations that we will use throughout this course.

### Note 2:

* Let us now install Anaconda.
* First, visit the download page of the official Anaconda website and download the latest version of the Python-3 Anaconda package appropriate for your platform.
* Here, we will be working with the 64-bit Anaconda 4.3.0 distribution for Mac OSX with Python 3.6, but other combinations should also work.
* Second, run the installer program and follow the instructions shown on the screen.
* The installer may ask some questions during the procedure.
* If you are not sure how to answer, accepting the default responses should be fine.
* You can update to the latest Anaconda version by executing the commands shown here from the command prompt, but this is only optional.

### Note 3:

* To launch the Jupyter notebook, first, open the "Terminal" application on Mac or Linux, or the "Command Prompt" on Windows to use the command line.
* It is probably convenient if you create a new folder or directory to store the notebooks for this course.
* Now, change into your chosen directory using the command shown here.
* Then, you can launch the Jupiter notebook by typing "jupyter notebook" in the command line.
* Some information will be displayed on your screen, which you can ignore; then the Jupyter notebook will be opened in your web-browser with a local URL.
* Here we use the Safari web-browser on Mac, but you should observe the same results under other operating systems or browsers.

### Note 4:

* Next, we will start a new Python kernel.
* Click on the "New" icon, and select "Python 3" which is circled in red in the figure.
* The Jupyter notebook works with many different programming languages, not just Python, but we will not be using this capability for this course.
* If you can see more than two "Python" options in the "New" menu, please be sure to choose Python-version-3.
* Here we just choose "Python 3".

### Note 5:

* Then a new notebook will open, with an empty box called "Cell", in which you can type and run python commands interactively.

### Note 6:

* To be sure that you are running a proper Python3 version, type the following commands in the cell, and run it by performing one of the following operations.
* The system will print the version number of the Python interpreter you are currently using.
* If it is found to be version 2, please uninstall the present Anaconda and re-install another Anaconda with a proper python version 3.

### Note 7:

* Here, let us use cells in code mode to run Python in interactive mode.
* First, perform one of the following operations to create a new cell.

### Note 8:

* Next, type "1+1" in the new cell and run it.
* Then you will find the answer "2" as an output.
* The cell is editable by clicking on it.

### Note 9:

* Now, type the following code-example in a new cell and run it.
* The 1st line is to import the "numpy" library with a shorter name "np".
* This library is necessary to use mathematical functions such as "sin" and "cos" in the notebook.
* Then you will find the values in the output cell.
* More detailed information is available at the “numpy” website.

### Note 10:

* You can also use Jupyter notebooks to write documents in Markdown mode.
* To write a formatted text, select the cell and change cell type to Markdown mode by one of the following operations.

### Note 11:

* Then type the following code-example in the selected cell and run it.
* This is the output.
* Detailed information on markdown is available at various websites, for example, at the website called "Mastering Markdown".

### Note 12:

* You can write equations using LaTeX commands in Markdown mode.
* Type the following code-example in the selected cell in Markdown mode and run it.
* The results are shown here.
* Detailed information on LaTeX is also available online, for example at "The LaTeX project" website.

### Note 13:

* Notebooks are periodically saved, but you can force save your changes by selecting "Save and Checkpoint" from the "File" menu or clicking on the "save" icon circled in green in the figure.
* You can also change the file name using the instructions below.

### Note 14:

* To terminate the Jupyter notebook, make the command line window active, and press "Control-C" until the command prompt is recovered, or select "File" menu -> "Close and Halt".
* You can also terminate the web-browser if necessary.
* If you accidently close the web-browser, without killing the Jupiter notebook from the command line or file menu, you can recover the ipython session by it by re-opening the local URL in your web browser.