- 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.

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- 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.

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- 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.

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- 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."

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

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- 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.

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- 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.

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- 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.

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- 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.

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- 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.

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- 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."

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- 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.

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- Notebooks are periodically saved, but you can force save your changes by selecting "Save and Checkpoint"

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- 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.

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- 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,

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- you can recover the ipython session by it by re-opening the local URL in your web browser.

静止してください

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