

Instructions for Julia tutorial

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1 Tutorial contents

In this session several Jupyter notebooks are provided for attendees to work through. Three of these notebooks are tutorials which present language features:

- Introduction to Julia
- Optimization in Julia
- Monte Carlo sampling and basic statistics in Julia

The first notebook introduces the language and will be presented by myself. Attendees are encouraged to run the code in this notebook during the presentation. The second and third Jupyter notebooks introduce respectively a Julia package for optimization modelling, and Julia functionality for Monte Carlo sampling. Each of these notebooks is complemented with another notebook containing related exercises:

- JuMP Exercises
- Simulation Exercises

These two tutorial notebooks can be done in any order, and you are encouraged work through whichever one interests you more. However, the tutorial notebook should be completed before attempting the corresponding notebook containing exercises.

2 Jupyter notebook usage

Opening a Jupyter Notebook

1. In the Ubuntu virtual machine press **Ctrl+Alt+t** to open a new terminal
2. In the terminal, run the command `jupyter notebook` (in the home directory) to start a new Jupyter notebook session. A Jupyter session will appear in a browser.
3. Use the file manager of the Jupyter session to navigate to the directory containing the tutorial notebooks.
4. Open a notebook (which has the extension `.ipynb`) by clicking on its name.

Running code in a Jupyter notebook

- To run the code in a cell, select the cell by clicking on it, and press **Shift+Enter**.
- Note that after opening a notebook, the Julia kernel has to start, so it may take a few seconds before the notebook becomes usable.
- The code in the tutorial notebooks should be run in the order in which they appear. Sometimes code which appears earlier in a notebook is used later on.
- To restart the Julia session in a notebook, select the **Kernel->Restart** in the menu at the top of the notebook.

Inserting Greek characters Julia supports unicode characters, and it is often convenient to use Greek characters in particular in code. To insert a Greek character, type in the corresponding \LaTeX macro and press **Tab**. For example type in `\alpha` to insert α .