

Advanced LCA PhD course

Aalborg 2019

Module 1

Setting up Python and Brightway2

This document includes all the relevant info for preparation to the course in terms of software installation. It is intended for people who are complete beginners with programming.

Learning Python

The more you can learn python before the course, the best. This is totally self-study.

Here some resources, give a look and find the one that feels best for you.

- Check a lot of options here on the [Brightway2 website](#)
- This one seems very clear and for academics: [A Byte of Python](#). Can download the pdf too.
- This is a good one: [think python](#)
- Sololearn python is a very good mobile App, in my opinion. Here the [Android version](#) and here the [iOS version](#).
- Free courses from [google](#) and [this too](#)

Python and Brightway2 installation

What we need for the course is:

- Text editor (*Notepad* or *Notepad++*, or other for windows, *TextEdit*, *Brackets*, or other for Mac)
- *Python* (the version is defined during brightway installation)
- Some scientific python packages like *scipy* and *numpy*
- *Jupyter notebook* (former Ipython notebook) which is a scientific python working environment
- *Brightway2*, python-based software for LCA

(google the names in italics for more info)

Please make sure you have python, Brightway2, and Jupyter up and running before we start (we won't use lecture time to install software).

If nothing of the instruction below works or this is too hard, please write me an email I'll try to help you remotely.

On Windows

Follow **step by step** the instructions in the Brightway2 official page [here](#). Here a couple of notes that may further help you with this installation, i.e. this is how I did it:

- Once you have installed miniconda, you need to open the 'Anaconda prompt' (not the default win prompt) and only **there** type all the commands (e.g. the first one in the official tutorial is `conda update conda`). How to do that? Inside the search field from your taskbar, start typing 'Anaconda' and you should find it.
- You can give your virtual environment the name 'BW2' (replace `<change-me>` with `BW2` in the command lines suggested on the webpage).

After you have followed all the instructions, please close the Anaconda prompt and open it again, then...

Type the line below and you should now see '(BW2)' on the beginning of each line.

```
activate BW2
```

Type the lines below and this should open python, run Brightway2, then close python.

```
python

import brightway2

quit()
```

You can now try to type either `jupyter notebook` and this should open a new window. When you close the window, the anaconda prompt will be full of stuff.

Press 'Ctrl + C' two times and it should return normal.

On Mac

Follow **step by step** the instructions in the Brightway2 official page [here](#). Here a couple of notes that may further help you with this installation, i.e. this is how I did it (**read this entirely before you start**):

- When downloading miniconda for mac [here](#) in the 'Downloads' folder I have chose the "Miniconda3 macOS Intel x86 64-bit pkg" version. Then double cklicked on it. This installed miniconda automatically. I chose the one for python 3.10. The installation created a folder "miniconda3" on my mac.

Note: If you download the .sh version instead then you need to follow these steps: open the mac [terminal](#) and type these three commands (Note the `./` in front of the third one...)

```
cd ~/Downloads

chmod +x ~/Downloads/Miniconda3-latest-MacOSX-x86_64.sh

./Miniconda3-latest-MacOSX-x86_64.sh
```

- Once miniconda is installed Open the terminal. Type `source ~/miniconda3/bin/activate` in order to be able to use conda and create the virtual environments.
- You can give your virtual environment the name 'BW2' (replace `<change-me>` with `BW2` in the command lines suggested on the webpage). When you will then type `source activate BW2` you should see '(BW2)' on the beginning of each line.
- Once you are done with the Brightway2 installation, and you have activated the virtual environment, try if everything works by typing:

```
python

import brightway2
```

If nothing happens and you don't get any error message, all is good. Use `quit()` to exit python and `jupyter notebook` to start a new notebook session

- Use `source deactivate BW2` to close the virtual environment and close the terminal with `exit`.
- From now on, each time you want to use Brightway2, you need again to open terminal and use the commands `source ~/miniconda3/bin/activate` and `conda activate BW2` respectively. Then navigate to the folder where you have the notebooks `cd /your/directory...`

Brightway2 resources

- Brightway2 official website <https://brightway.dev/> contains info about installation and key features, and example jupyter notebooks
- On [Stackoverflow](#) you can ask questions, give answers, and find answers about Brightway2 using the tag `brightway`
- You can check the [source code](#) behind all Brightway2 functions. this means you can see how Brightway2 is written in python and the entire code is open source. You can even contribute.