

Python for data science

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UWEC Data Analytics

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- This presentation is available at my homepage,
danibrake.org/papers
- The notebooks are available at
github.com/ofloveandhate/data_science_python

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Outline

- 1 Environments & tutorial
- 2 Python packages for data science
- 3 Do something

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An environment is a way of interacting with software

In Python, we have these critical elements:

- Text editor
- Terminal – IO interface
- Working install of Python

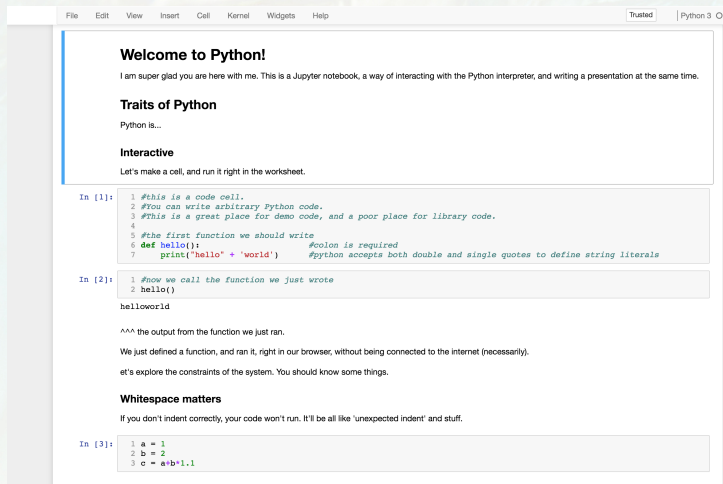
Two major alternatives

- ① Terminal-texteditor pair
- ② IDE – Integrated Development Environment

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- All-in-one REPL
Read-eval-print loop
- Markdown cells and code cells
- Full power of Python.
- Github can view them online. Easy to share.



File Edit View Insert Cell Kernel Widgets Help Trusted Python 3.0

Welcome to Python!

I am super glad you are here with me. This is a Jupyter notebook, a way of interacting with the Python interpreter, and writing a presentation at the same time.

Traits of Python

Python is...

Interactive

Let's make a cell, and run it right in the worksheet.

```
In [1]: 1 #this is a code cell.
        2 #You can write arbitrary Python code.
        3 #This is a great place for demo code, and a poor place for library code.
        4
        5 #the first function we should write
        6 def hello():          #colon is required
        7     print("hello" + 'world')  #python accepts both double and single quotes to define string literals
```

```
In [2]: 1 #now we call the function we just wrote
        2 hello()

helloworld

^^^ the output from the function we just ran.

We just defined a function, and ran it, right in our browser, without being connected to the internet (necessarily).

et's explore the constraints of the system. You should know some things.
```

Whitespace matters

If you don't indent correctly, your code won't run. It'll be all like 'unexpected indent' and stuff.

```
In [3]: 1 a = 1
        2 b = 2
        3 c = a+b*1.1
```

My preferred method for interactive presentations

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There are tons of libraries to help you solve **your** problems

Core computation

- NumPy
- SciPy
- Matplotlib
- Sympy

Plotting & vis

- Pandas
- Seaborn
- Bokeh
- Plotly

Machine learning & AI

- Tensorflow
- NLTK
- **Scrapy**

this is not at all exhaustive!



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Resources are there for you

Cheatsheets

- [python](#)
- [another python](#)
- [pandas](#)
- [matplotlib](#)
- [markdown](#)

Websites and tutorials

- <https://learnpython.org/>
- <https://docs.python.org/3/tutorial/>
- <http://sthurlow.com/python/>
- <https://pythonprogramming.net/math-basics-python-3-beginner-tutorial/>



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Live demos

because i heart you

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Thank you for your kind attention!



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