

# PROGRAMMING WITH PYTHON



**BUILD YOUR SKILLS**  
WORKSHOP SERIES

[GO.GWU.EDU/LIBWORKSHOPS](https://go.gwu.edu/libworkshops)

# Instructors

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## Slides:

<http://go.gwu.edu/gwlibpythonworkshop>

# Today's Plan

~80 minutes:

Basic Concepts

~40 minutes

Data with  
Pandas

## **How to be awesome (for beginning programmers)**

- Ask questions!
- If something is confusing in the workshop, it probably needs improvement; let us know.
- Google is your friend, especially as you continue on with Python

## **How to be awesome (for people with programming experience)**

- Help each other out
- Respect every question and person asking the question

**Ask us for help if you are  
lost/stuck/curious/confused!**

# Why Python?

- General purpose
- Easy to learn
- Readable\*
- Open Source
- Widely Used
- Good built-in and contributed libraries



# The Zen of Python

Beautiful is better than ugly.

Explicit is better than implicit.

Simple is better than complex.

Complex is better than complicated.

Flat is better than nested.

Sparse is better than dense.

Readability counts.

Special cases aren't special enough to break the rules.

Although practicality beats purity.

Errors should never pass silently.

Unless explicitly silenced.

In the face of ambiguity, refuse the temptation to guess.

There should be one-- and preferably only one --obvious way to do it.

Although that way may not be obvious at first unless you're Dutch.

Now is better than never.

Although never is often better than *\*right\** now

read the rest at:

[www.python.org/dev/peps/pep-0020](http://www.python.org/dev/peps/pep-0020)

# Different ways to use Python



- Command line/REPL

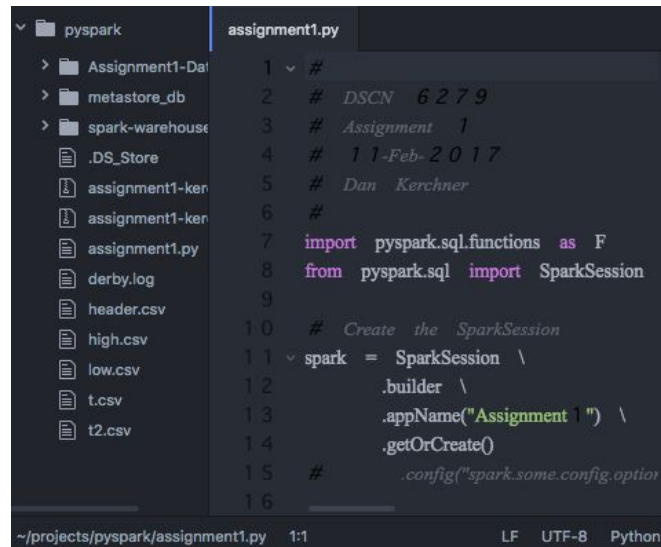
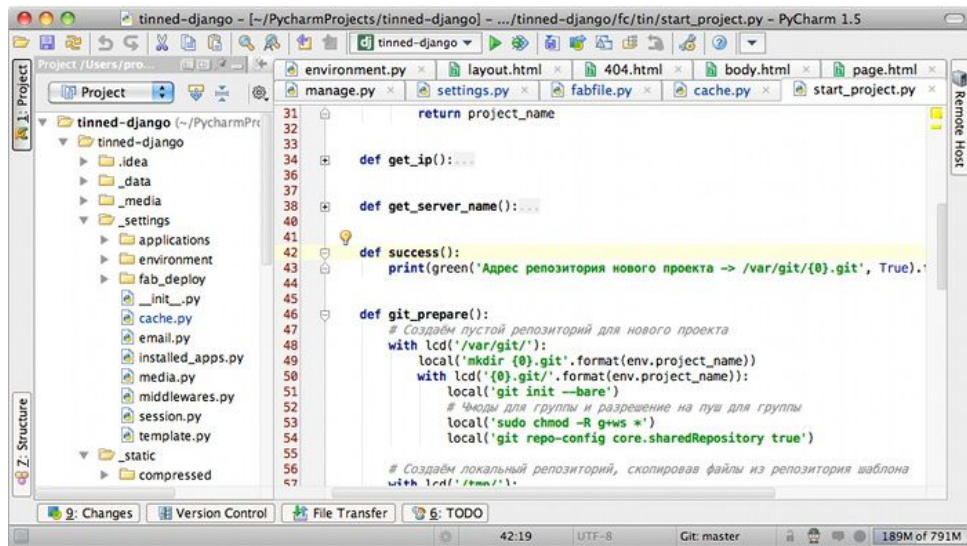
```
Last login: Mon Mar 20 22:09:33 on ttys001
[GLSS-M17LFFT:~ kerchner$ python
Python 2.7.10 (default, Oct 23 2015, 19:19:21)
[GCC 4.2.1 Compatible Apple LLVM 7.0.0 (clang-700.0.59.5)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>> opinion = "This workshop is awful!"
>>> opinion == True
False
>>> █
```

- Jupyter notebooks
  - Stay tuned...



# Different ways to use Python

- Integrated Development Environment (IDE) – Spyder, pyCharm, pyDev, Sublime, ...
- File editor (e.g. Atom, vim) + command line tools (pip, virtualenv, ...)



# Today's workshop

Anaconda = Python (and R) plus:

- package management
- **Jupyter notebooks**
- lots of libraries
  - data processing
  - analytics
  - scientific computing
  - including: **Pandas**




*\*Lessons based on Data Carpentry workshop*

# Getting started

- Anaconda install
- Start up Anaconda Navigator, launch Jupyter notebook
- Download the files – instructions are at [go.gwu.edu/3ns](https://go.gwu.edu/3ns)  
(a.k.a. [github.com/gwu-libraries/python-intro-workshop](https://github.com/gwu-libraries/python-intro-workshop) )

# Some recommendations

- Isolate your environments
- PEP 8
- Editor w/Syntax highlighting (most do)
- Python 3
- Write assuming your code will be read (incl. by Future You)
-  **GitHub**
- Keep learning

# Some Python libraries/frameworks

- Building web applications:
  - Django
  - Flask
- Scientific/numerical
  - Numpy/Scipy/Pandas (<http://scipy.org/>)
- Data Science/Machine Learning (with Pandas)
  - scikit-learn

# Tutorials & Help

- [learnpythonthehardway.org/book](http://learnpythonthehardway.org/book) (free for Python 2, not free for Python 3)
- [Software Carpentry](#), [Data Carpentry](#) (not just Python)
- Lynda.com [lynda.it.gwu.edu](http://lynda.it.gwu.edu) courses: 13 Python, 3 Pandas
- More on Pandas:
  - <http://www.datacarpentry.org/python-ecology-lesson/>
  - <http://pandas.pydata.org/pandas-docs/stable/10min.html>
  - <http://pandas.pydata.org/pandas-docs/stable/tutorials.html>
  - <http://pandas.pydata.org/pandas-docs/stable/cookbook.html>
- Coding Consultations at GW Libraries – [go.gwu.edu/coding](http://go.gwu.edu/coding)

# Contact us:

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