

# PROGRAMMING WITH PYTHON



**BUILD YOUR SKILLS**  
WORKSHOP SERIES

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

# Today's Instructors

- Dan Kerchner [kerchner@gwu.edu](mailto:kerchner@gwu.edu)
- Laura Wrubel [lwrubel@gwu.edu](mailto:lwrubel@gwu.edu)
- Dolsy Smith [dsmith@gwu.edu](mailto:dsmith@gwu.edu)

**Materials:** [go.gwu.edu/pyw](https://go.gwu.edu/pyw)

**Please sign in at:** [go.gwu.edu/laisignin](https://go.gwu.edu/laisignin)

# Today's Plan

~2 hours:

Basic Concepts

~2 hours

Data with  
Pandas

# About today...

- Ask questions!
- If you're stuck:
  - Ask us
  - Help each other out!
- If something is confusing in the workshop, it probably needs improvement; let us know.
- Don't forget to sign in! [go.gwu.edu/laisignin](https://go.gwu.edu/laisignin)
- Stay as long as you like

# Why Python?



- Free
- General purpose
- Easy to learn
- Readable\*
- Community-developed / Open Source
- Widely used and documented
- Good built-in and contributed libraries

# Different ways to use Python

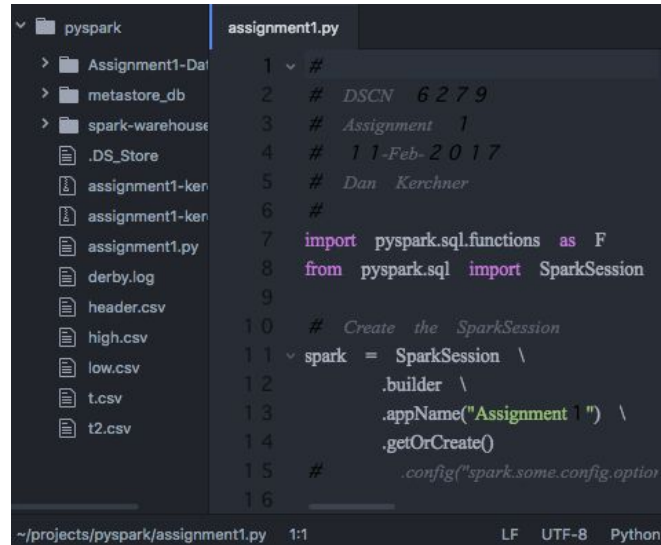
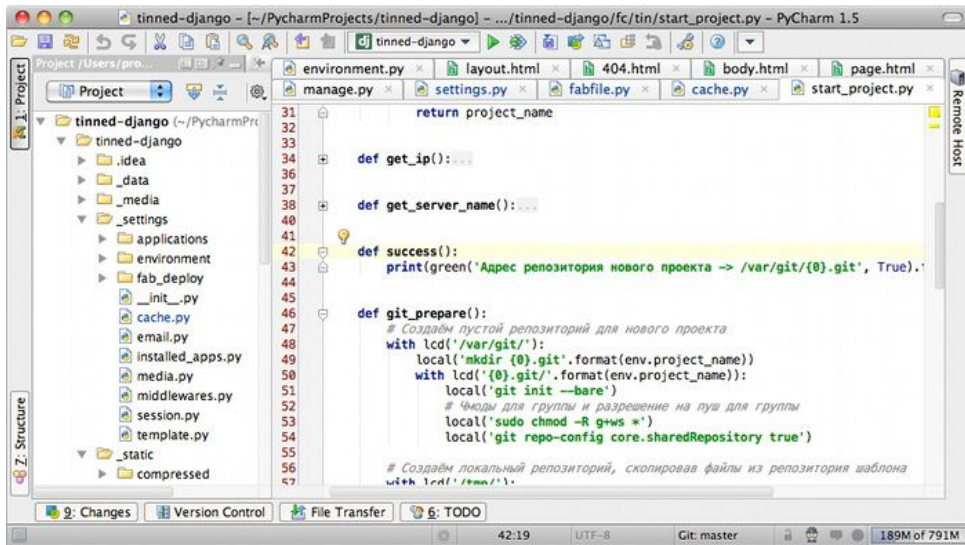


- Command line/REPL

```
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
>>> █
```

# Different ways to use Python

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



# Different ways to use Python (continued)

- "Notebooks":
  - Jupyter notebooks
  - Google Colab (available in your Google Drive!)
  - Kaggle notebooks
  - others?



# Even more ways to use Python

Anaconda = Python (and R) plus:


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



# Setup

- Google Colaboratory ~ OR ~ <https://jupyter.lai.gwu.edu>

# Some recommendations

- Python 3
- Write assuming your code will be read (incl. by Future You)
- Version your code  **GitHub**
- Learn to be "Pythonic" in your style
- Isolate your projects from each other
- Google is your friend
- Keep learning!

# Some Python libraries/frameworks

Building web applications	Django Flask
Scientific/numerical	Numpy Scipy Pandas
Machine Learning	scikit-learn
Data Visualization	matplotlib ggplot (like ggplot2 in R) plotly (<- interactive)

# To Learn More

- [learnpython.org](https://learnpython.org)
- [Software Carpentry](#), [Data Carpentry](#) (not just Python)
- Lynda.com [lynda.it.gwu.edu](https://lynda.it.gwu.edu) courses: 13 Python, 3 Pandas
- More on Pandas:
  - <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>
  - <http://www.datacarpentry.org/python-ecology-lesson/>
- More on Pandas and on Data Viz: <https://www.kaggle.com/learn/>
- Coding Consultations at GW Libraries – [go.gwu.edu/coding](https://go.gwu.edu/coding)

# Contact us:

**Coding Appointments (Laura, Dan, Justin):**

[go.gwu.edu/coding](https://go.gwu.edu/coding)

**Stats Appointments:**

[calendly.com/statistical-consulting-gw](https://calendly.com/statistical-consulting-gw)

**Workshop Materials:** [go.gwu.edu/pyw](https://go.gwu.edu/pyw)

**Did you sign in?** [go.gwu.edu/laisignin](https://go.gwu.edu/laisignin)