

## Topic Outline: Review & Applications

Revised: March 23, 2016

### Materials

- Today's handouts: this outline, stickers (as needed)
- Posted on *Topic outlines & links* page of website (except the stickers)

### Preliminaries

- Next week's exam
  - Covers: Python fundamentals 1/2, data input with Pandas, graphics with Matplotlib
  - Like a driving test: just the essentials
  - Format: an IPython notebook like the one we use below. Add answers, email it back to us.
  - Rules: open book and open internet (wireless permitting), but we recommend a one-page "cheat sheet"
- **Exercise (review setup)**
  - Put red sticker on your laptop
  - Download IPython notebook  
[https://github.com/DaveBackus/Data\\_Bootcamp/blob/master/Code/IPython/bootcamp\\_exam\\_practice.ipynb](https://github.com/DaveBackus/Data_Bootcamp/blob/master/Code/IPython/bootcamp_exam_practice.ipynb)  
and save Raw file in your `Data_Bootcamp` directory  
In short: GitHub  $\Rightarrow$  Code  $\Rightarrow$  IPython  $\Rightarrow$  `bootcamp_exam_practice.ipynb`  $\Rightarrow$  Raw
  - **We're going to start Jupyter without using Launcher**
  - Go to the command line
    - \* Windows: push the Windows key and enter "command prompt".
    - \* Macs: click the magnifying glass in the top right and enter "terminal".
  - Type: `jupyter notebook` [enter]
  - If this starts Jupyter, you're all set. **If not, let us know.**
  - Replace red sticker with green when you're set

### Exam practice

Work your way through the practice exam. Raise your hand when you get stuck.

- IPython basics
- Python fundamentals
- Data input with Pandas
- Graphics with Matplotlib

## Applications

### Setup

- Put red sticker on your laptop
- Download IPython notebook  
[https://github.com/DaveBackus/Data\\_Bootcamp/blob/master/Code/IPython/bootcamp\\_examples.ipynb](https://github.com/DaveBackus/Data_Bootcamp/blob/master/Code/IPython/bootcamp_examples.ipynb)  
and save Raw file in your `Data_Bootcamp` directory  
In short: GitHub  $\Rightarrow$  Code  $\Rightarrow$  Lab  $\Rightarrow$  `UN_demography.ipynb`  $\Rightarrow$  Raw
- Start Jupyter – **from the command line** – and open notebook
- Replace red sticker with green when you're set

We'll spend the rest of the class looking at demographic data. We do this partly because it's inherently interesting, partly because it's a good illustration of the research process: we start with one fact, which suggests questions that drive us to look for other facts; repeat as needed.

We follow the notebook:

- Aging populations (esp Japan)
- Fertility (births)
- Life expectancy
- Mortality (deaths)

### After class

- Required
  - Nothing
- Recommended
  - Review book chapters
  - Review code practice
  - Prepare your cheat sheet