# 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
    and save Raw file in your `Data_Bootcamp` directory
    In short: GitHub ⇒ Code ⇒ IPython ⇒ `bootcamp_exam_practice.ipynb` ⇒ 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

  and save Raw file in your `Data_Bootcamp` directory

  In short: GitHub ⇒ Code ⇒ Lab ⇒ `UN_demography.ipynb` ⇒ Raw
- Start Jupyter – **from the command line** – and open notebook
- Replace red sticker with green when you're set

**Demography.** 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 followup questions that drive us to look for other facts, Repeat as needed.

The code here goes beyond what we've done so far. We'll fill that in later, but feel free to ask questions as we go. Topic list:

- 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