Review for Exam 1
18.05 Spring 2022

https://xkcd.com/552/
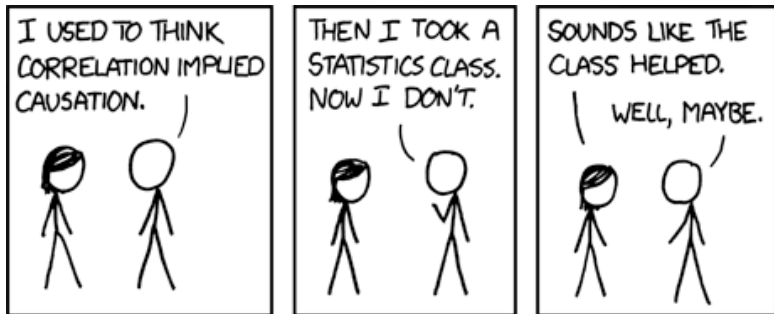
Announcements

- Friday (regular class, in 4-149). Class 10 –starting statistics.
- Reading questions for Class 10 are posted but optional.

Exam 1

- Designed to be 1 hour long. You'll have the entire 80 minutes.
- For the exam you will be given a table of standard normal probabilities.
- You can bring in a cheat sheet: 1 side of an 8×11 sheet of paper. You'll turn it in with the exam for 5 points.
- Lots of practice problems posted on our MITx site (see week 5).
- No calculators. (They won't be necessary.)
- Be sure to get familiar with the table of normal probabilities. You will be given a copy on the exam.
- No R on the exam.

Normal Table

Standard normal table of left tail probabilities.

z	$\Phi(z)$	z	$\Phi(z)$	z	$\Phi(z)$	z	$\Phi(z)$
-4.00	0.0000	-2.00	0.0228	0.00	0.5000	2.00	0.9772
-3.95	0.0000	-1.95	0.0256	0.05	0.5199	2.05	0.9798
-3.90	0.0000	-1.90	0.0287	0.10	0.5398	2.10	0.9821
-3.85	0.0001	-1.85	0.0322	0.15	0.5596	2.15	0.9842
-3.80	0.0001	-1.80	0.0359	0.20	0.5793	2.20	0.9861
-3.75	0.0001	-1.75	0.0401	0.25	0.5987	2.25	0.9878
-3.70	0.0001	-1.70	0.0446	0.30	0.6179	2.30	0.9893
-3.65	0.0001	-1.65	0.0495	0.35	0.6368	2.35	0.9906
-3.60	0.0002	-1.60	0.0548	0.40	0.6554	2.40	0.9918
-3.55	0.0002	-1.55	0.0606	0.45	0.6736	2.45	0.9929
-3.50	0.0002	-1.50	0.0668	0.50	0.6915	2.50	0.9938
-3.45	0.0003	-1.45	0.0735	0.55	0.7088	2.55	0.9946
-3.40	0.0003	-1.40	0.0808	0.60	0.7257	2.60	0.9953
-3.35	0.0004	-1.35	0.0885	0.65	0.7422	2.65	0.9960
-3.30	0.0005	-1.30	0.0968	0.70	0.7580	2.70	0.9965
-3.25	0.0006	-1.25	0.1056	0.75	0.7734	2.75	0.9970

Today

1. Correlation is not causation examples.

2. Get the in-class Exam 1 material from MITx 'Review Materials'

– Scan the review list.

– Work in groups at the boards and the staff will come around and answer questions.

Real-life correlations

- Over time, amount of ice cream consumption is correlated with number of pool drownings.

- In 1685 (and today) being a student is the most dangerous profession. That is, the average age of those who die is less than any other profession.

- In 90% of bar fights ending in a death the person who started the fight died.

- Hormone replacement therapy (HRT) is correlated with a lower rate of coronary heart disease (CHD).

Correlation is not causation

Edward Tufte: "Empirically observed covariation is a necessary but not sufficient condition for causality."