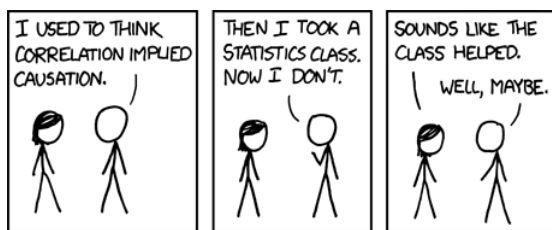# 0   Syllabus and Introduction

Comic from XKCD

0.1   Description

Statisticians interpret data and use it to inform decisions about healthcare, policy, business, and more. This course will explore basic probability theory behind parameter estimation, hypothesis testing, and experimental design. Because data is the heart of statistics, we will also emphasize practical applications and the use of real datasets from biology, government and finance to visualize data and explore different hypotheses. If you are at least 95% confident about being interested in this course, you are welcome to join!

0.2   Logistics

Course Meetings: Room 56-154, **1:30-2:30 pm** (Duration 1hr)
Please be on time. Computers or tablets are not required, but can be used for note-taking. Occasionally, paper copies of handouts will be provided.

Your Instructor: Alexandra (Lexi) Ding, graduated from Harvard College in May 2017 with a degree in Neurobiology and minor in Statistics. Former HSSP student (2007-2013). Will be working in D.C. in the Fall as a data scientist.

Contact: alexawding@gmail.com. **Please feel free to email with questions or comments!**

0.3   (Approximate) Schedule

Schedule is subject to change.

1. Random Variables, Distributions, and Statistics

2. Distributions II, and Introduction to Inference

3. More Inference: Hypothesis Testing and Confidence Intervals

4. Design of Experiments

5. Regression Analysis and Data Visualization

6. Beyond AP Stat: Machine Learning and Data Science