Introduction

What we're doing here

Why are we here?

- Understand what data scientists do
- Understand how to work with data scientists
- Get some cool tools and skills
- Build visualizations - for decisions, M&E, funding
- Stop hand-waving and start making stuff

This Weekend

- Friday: introduction, tools, Python, data
- Saturday: more data, science, communicating
- Sunday: D3, big data, continuing your journey

Focussing on Concepts

- Lots of data science applications and tools, very few core concepts:
  - Data collection
  - Data cleaning
  - Visualisation
  - etc

Tools change: want you to focus on the concepts

And basics of commonly-used tools

- Python, R, D3
- Very flexible languages
- Lots of helpful libraries
- Huge communities

PS Ignore the holy wars - just use what works for you

Who's helping?

- Prof:
  - Sara-Jayne Terp (bodacea on github)
- Teaching Assistants:
  - Nate Brennand
  - Henrique Gubert
  - Lin He

Some of you have to leave for an hour or two

- To go to church, lectures, etc (nb "hangover" doesn't count)
- That's okay… these things happen
- All slides are online, with notes
- And we have "activity sessions", designed to help you get further

What is Data Science?

- "A data scientist… excels at analyzing data, particularly large amounts of data, to help a business gain a competitive edge."
- "The analysis of data using the scientific method"
- "A data scientist is an individual, organization or application that performs statistical analysis, data mining and retrieval processes on a large amount of data to identify trends, figures and other relevant information."

The Scientific Method

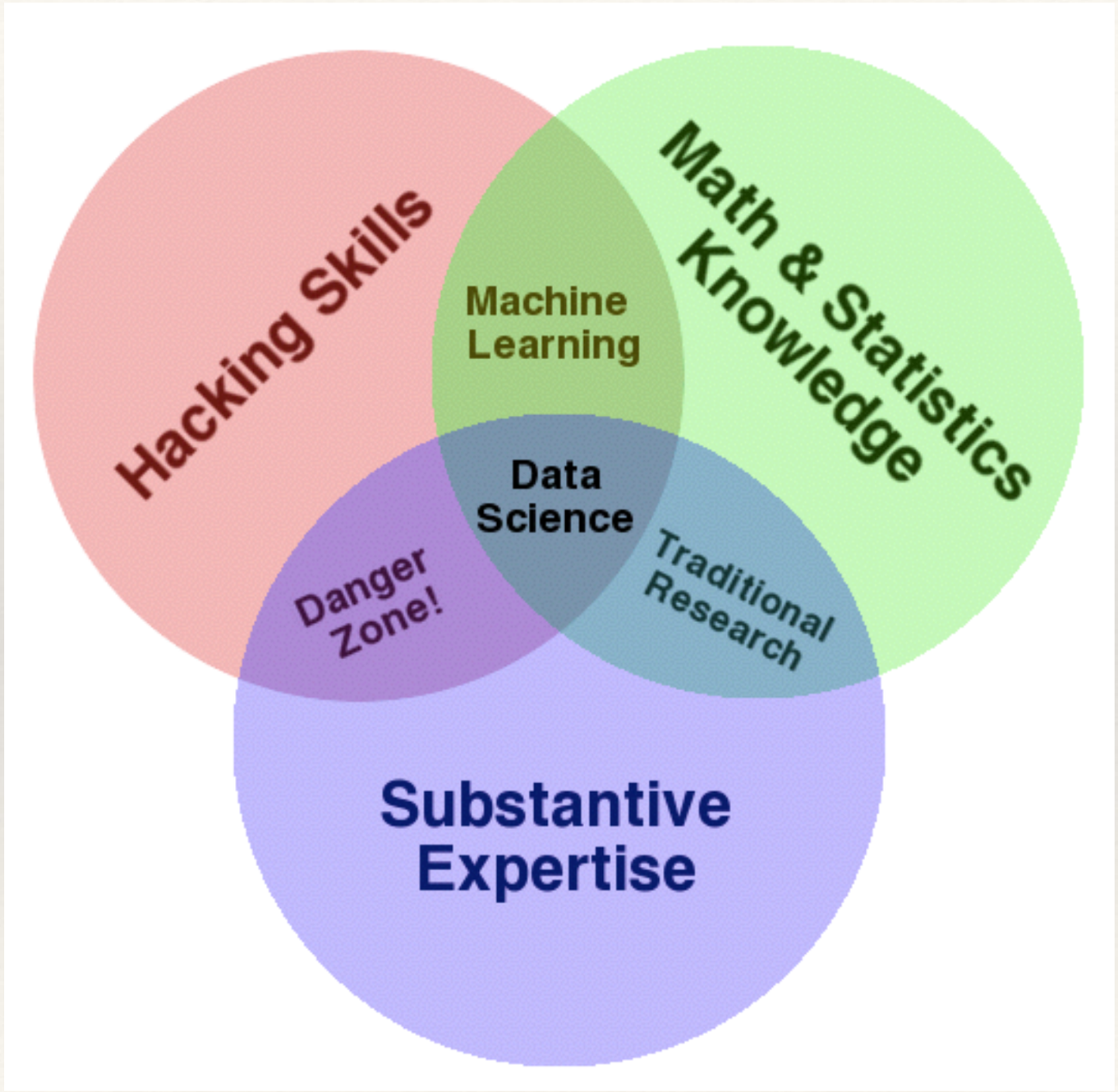
- Ask a question
- Do background research
- Construct a hypothesis
- Test your hypothesis by doing an experiment
- Analyse your data and draw a conclusion
- Communicate your results

O'Neil and Schutt "Doing Data Science"

Understanding through Data

Competition Name	▲ Reward	Teams	Deadline
 limited **15.071x - The Analytics Edge Competition (Spring 2015)** Test your analytics skills by predicting which New York Times blog articles will be the most popular.	Private	528	18 days
 **Forest Cover Type Prediction** Use cartographic variables to classify forest categories	Knowledge	1572	25 days
Insert *(noun?)* here? **Billion Word Imputation** Find and impute missing words in the billion word corpus	Knowledge	78	15 days
 **Bike Sharing Demand** Forecast use of a city bikeshare system	Knowledge	2687	43 days
 **Random Acts of Pizza** Predicting altruism through free pizza	Knowledge	384	46 days

What's a Data Scientist?



How do you become a data scientist?

Practice

Should you become a data scientist?

- Not necessarily. There are lots of data science students desperate for good problems to work on.
- You might want to become someone who can work **with** data scientists
- Which means learning how to specify data problems well

Some questions for you

- What do you want to get out of this weekend?
- What are your favorite visualisations?
- What's your favorite dataset?
- What questions do you want to answer with data?

And some answers

- Your course credits are:
  - 20% Class participation
  - 30% Coding exercises in class
  - 50% Final project: specify and work on a data science problem of your choosing, either individually or in groups.
- Final project hand-in is Monday 27th April.