

Introduction to Data Analysis and Course Overview

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An Introduction to Practical Data Analysis in Medicine
and Public Health
January 27, 2015

What's so great about data?

Data is everywhere!



Source: [Politico](#)

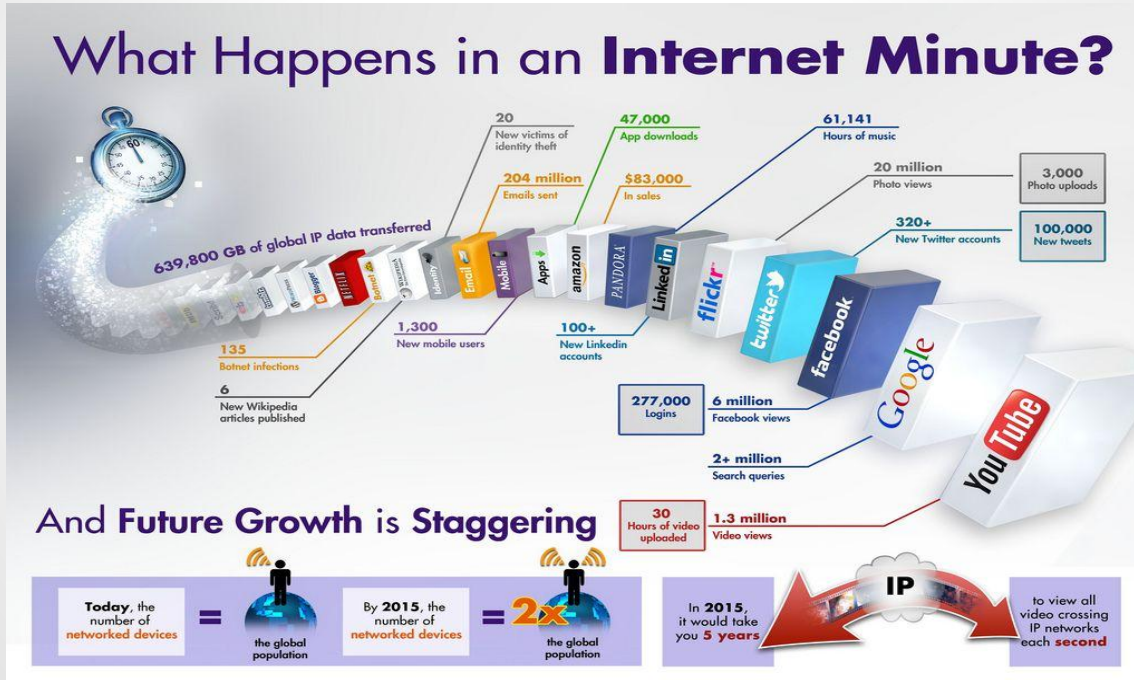
Source: [CBS Dallas/Fort Worth](#)



Source: [Her World Plus](#)

What's so great about data?

Data is exploding!



Source: [Intel Free Press](#)

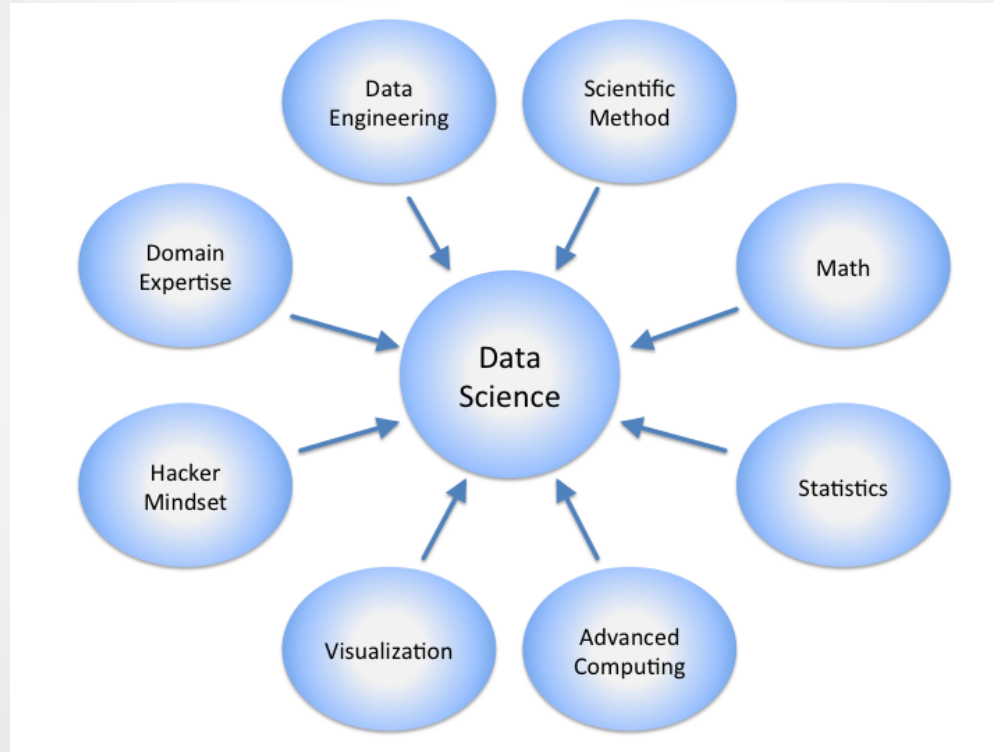
What is data analysis?

“Data science is the study of generalizable extraction of knowledge from data.”

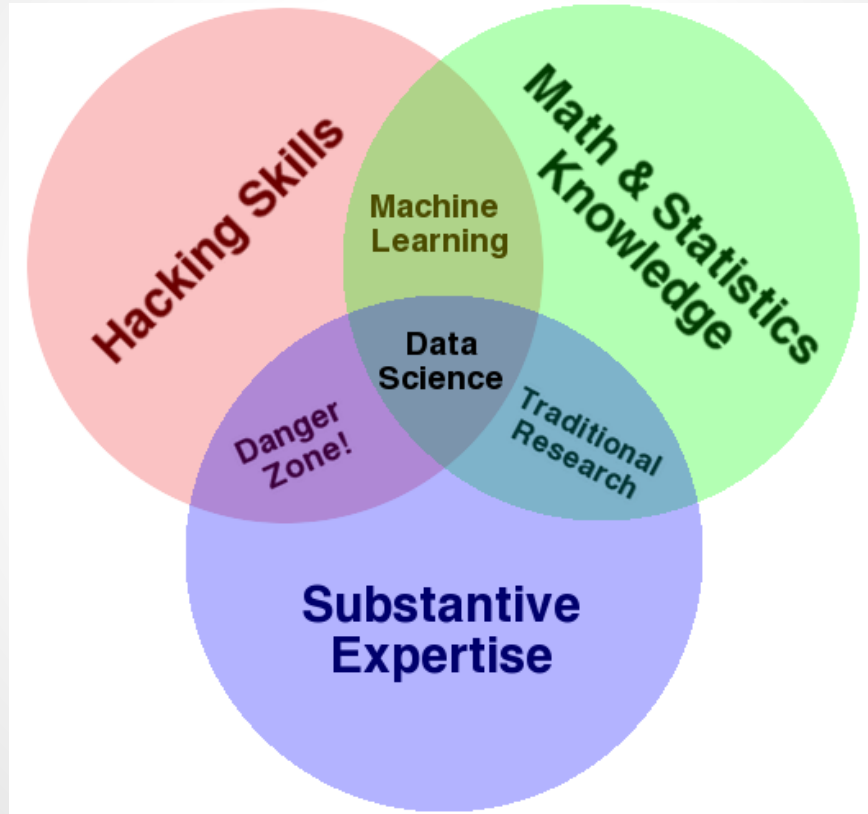
Data analysis is “a process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision making.”

Statistics is “the study of the collection, analysis, interpretation, and organization of data.”

What is data analysis?



What is data analysis?



What does a data analyst look like?



Source: [Wikipedia](#)



Source: [Prembel Foundation](#)



Source: [Wikipedia](#)

Why should I become a data analyst?

- For the glory
- For the money
- For the fun
- To save lives
- Because you are needed

Source: [Jeff Leek](#)

Source: [CDC](#)



Source: [The New York Times](#)

Source: [PsPrint](#) via [Kaggle](#)



We're making data science a sport.

[Participate in competitions](#) [Create a competition](#)

Kaggle is an arena where you can match your data science skills against a global cadre of experts in statistics, mathematics, and machine learning. Whether you're a world-class algorithm wizard competing for prize money or a novice looking to learn from the best, here's your chance to jump in and geek out, for fame, fortune, or fun.

[Sign up as a competitor](#) [See how it works](#)

(need convincing?)

Kaggle Recruit [Browse all »](#)

facebook **Facebook Recruiting Competition** [Ends 28 days](#)
JOB Data Scientist at Facebook Multiple Locations 188 teams [Join](#)

Kaggle Prospect [Browse all »](#)

practice fusion **Practice Fusion Analyze This! 2012 - Prediction Challenge** [Ends 18 days](#)
How do you get accurate health records, and submit your [\\$10,000](#)

kaggle prospect
NEW Sitting on a gold mine of data but unsure where to begin digging? Kaggle Prospect is our

How can I become a data analyst?

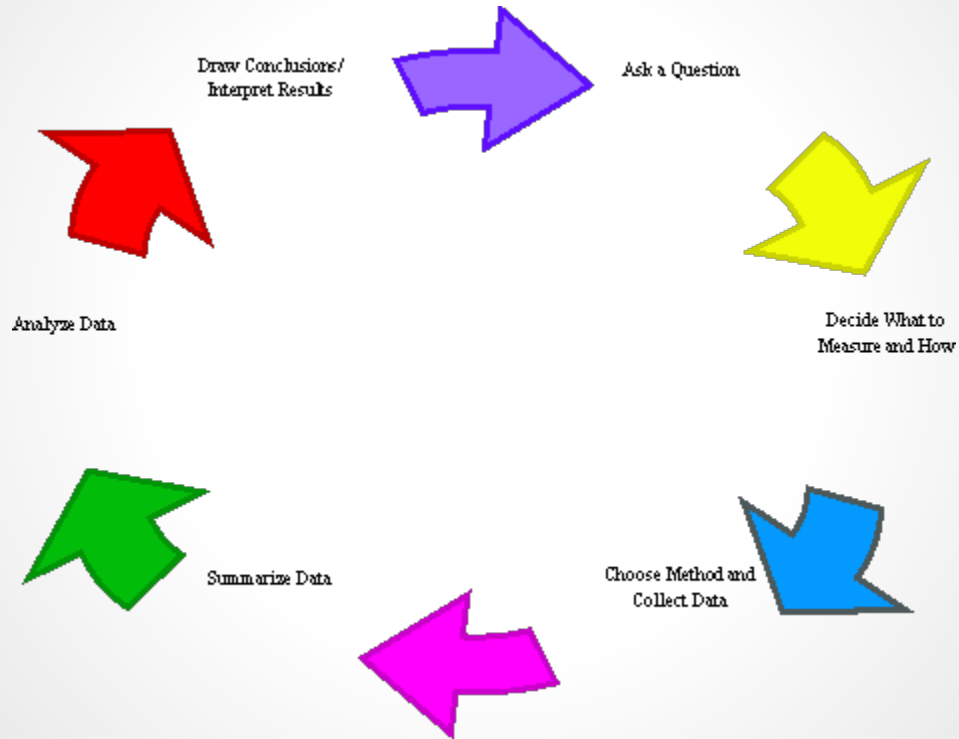
- Take my course!
- Take an applied statistics course ([Jeff Leek](#), [Brian Caffo](#))
- Find online and book resources ([Wikipedia](#), [Springer](#), blogs, etc.)
- Complete [Coursera's data science and analysis specializations](#)
- Practice!

Source: [TIBCO Spotfire](#)



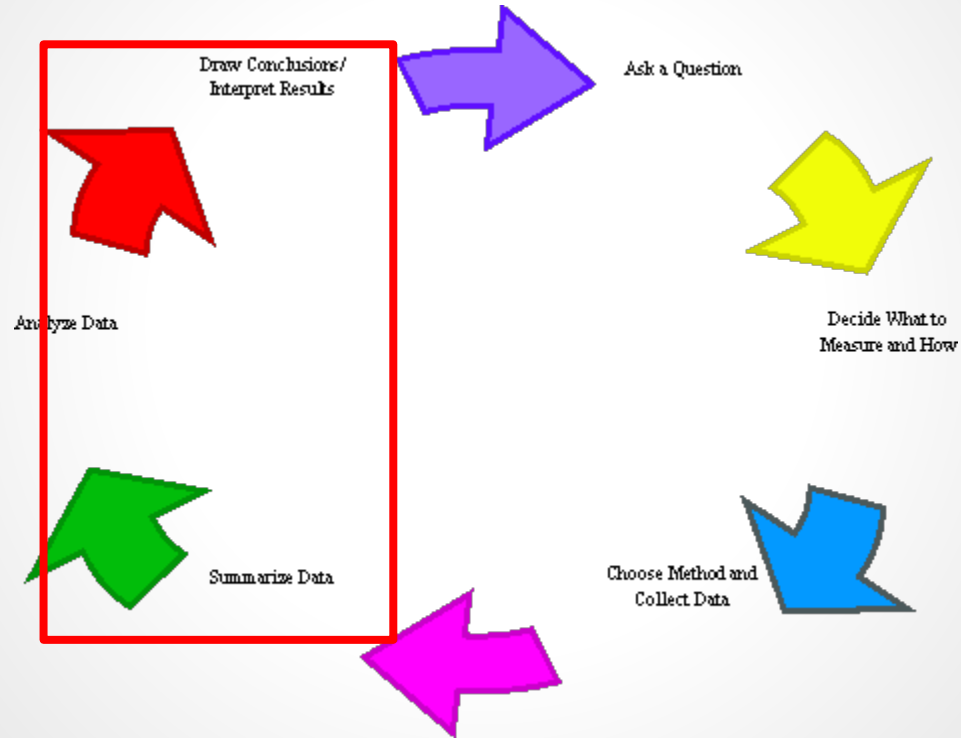
Bottom line: The amount of data and the need for data analysts are increasing rapidly. You could be the data analyst that changes the world. Data is knowledge, knowledge is power.

Process of Statistical Analysis



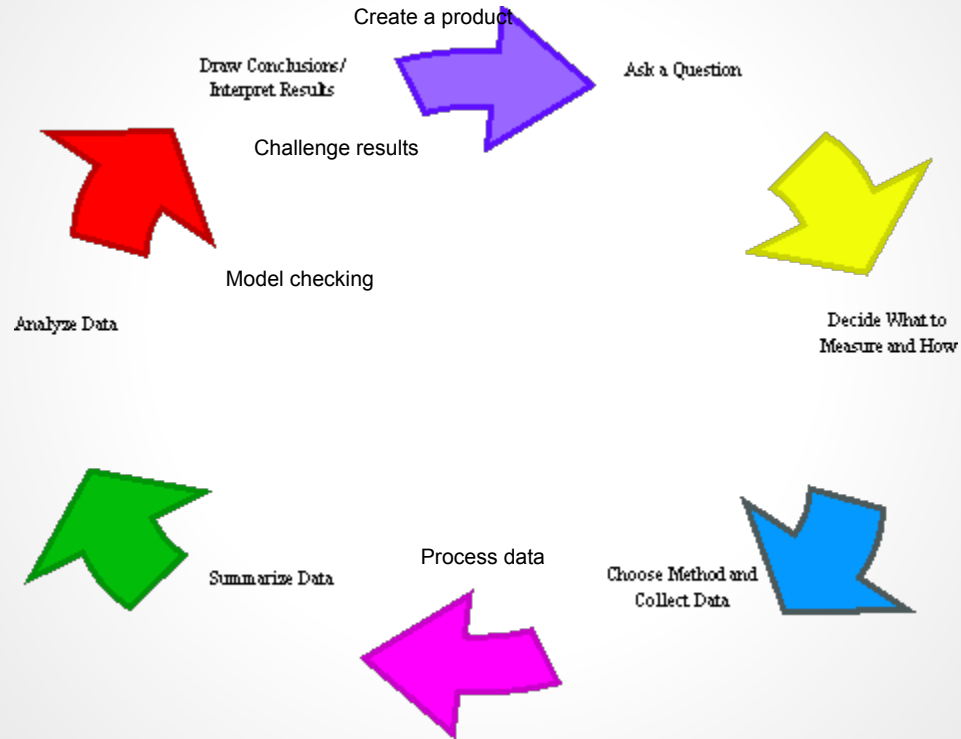
Source: [The Role of Statistics in Research](#)

Process of Statistical Analysis



Source: [The Role of Statistics in Research](#)

Process of Data Analysis



Source: [The Role of Statistics in Research](#)

Syllabus Review

- Brief overview
- Feel free to ask any questions!

Class Structure

- Quick evaluation of a portion of a data analysis
- Introduction of new information or review and continuance of information from previous class
- Informal active learning activity

KEYWORD: **Active**

Next Class: Review of R

- Create a FREE account at Code School (<https://www.codeschool.com/>)
 - You will be completing the FREE Try R course and submitting a screenshot of your report card as verification. Feel free to complete the course before class!
- Download R (<http://www.r-project.org/>)
- Download RStudio (<http://www.rstudio.com/products/rstudio/download/>)