

Chapter 1 Notes – Stats Starts Here

** Homework **
Quiz tomorrow

A. Three Simple Steps to Doing Statistics Right:

1. Think - know where you're headed and why
2. Show - calculate stats and make graphs
3. Tell - explain your results to others so they can understand your conclusions

B. Data is useless without context.

C. The W's:

1. Who (usually the rows of a table)
 - Can be people, animals, plants, etc. This includes the individual cases about which we gathered the information.
2. What (usually the columns of a table)
 - These are the variables (characteristics) being measured or recorded
3. Why - the purpose of the study (data)
4. Where - the place of data collection
5. When - when the data was collected
6. How - method of collecting the data

D. **Population** represents the entire group of interest.

Sample represents a portion of the group of interest.

Name the Who's:

movies

Name the What's:

year, rating, time(min),
genre, box office(\$)

Movie	Year	Rating	Time (min)	Genre	Box office (\$)
Avatar	2009	PG-13	162	Action	2,783,918,982
Titanic	1997	PG-13	194	Drama	2,207,615,668
Star Wars: The Force Awakens	2015	PG-13	136	Adventure	2,040,375,795
Jurassic World	2015	PG-13	124	Action	1,669,164,161
Marvel's The Avengers	2012	PG-13	142	Action	1,519,479,547
Furious 7	2015	PG-13	137	Action	1,516,246,709
The Avengers: Age of Ultron	2015	PG-13	141	Action	1,404,705,868
Harry Potter and the Deathly Hallows: Part 2	2011	PG-13	130	Fantasy	1,328,111,219
Frozen	2013	PG	108	Animation	1,254,512,386
Iron Man 3	2013	PG-13	129	Action	1,172,805,920

E. Variables ("Whats") are characteristics recorded about each "Who".

Variables should identify clearly what is measured and sometimes require
units.F. "Whats" can be categorical or quantitative.

Which "What's" above are Categorical?

year?, rating, genre

Which "What's" above are Quantitative?

year?, time(min.), box office(\$)G. identifier variables are categorical variables that have exactly one member. Don't analyze identifiers.

Ex. Social security number.

(movie name is an identifier)

H. The first step of any data analysis should be to look at the W's.

who , what and why are
required to accurately analyze the data, whereas, when ,
where and how are additional nice pieces
of information to have.

I. WATCH OUT FOR THESE COMMON MISTAKES:

1. Don't label Q or C without thinking about the context
2. Don't assume numbers are always quantitative
3. Always be skeptical - don't take data for granted

J. Key Concepts for this chapter:

1. Statistics is about data. It helps us to understand the world, and describes how data varies.
2. Data are information in context. Use the W's.
3. Variables (What's) are categorical or quantitative (usually with units).
4. Context is very important in determining whether a variable is quantitative or qualitative.