

# Data Types Exercise

Lise Doucette, University of Western Ontario (ldoucet@uwo.ca)

# Categorical/nominal data

- Categories that do not have a logical order
- Two possible values (binary) or multiple possible values (multinomial)
- Options should be mutually exclusive and exhaustive
  
- Examples:
  - Did you attend a library instruction session in the past year? Yes/No
  - What degree program are you registered in?  
Mathematics/Chemistry/Physics/etc...

# Ordinal data

- There is a logical order to the data
- Each possible option is understood to be relative to another option (less than / more than) but not in a quantifiable way
- Likert scales are a good example
- *Sometimes* coded as numbers and averages are calculated, but lots of debate on whether this is appropriate
- Examples:
  - What is the highest degree that you have completed? (High school / Undergraduate / Graduate / etc.)
  - How easy to use is the library website? (Very difficult / Somewhat difficult / Somewhat easy / Very easy)

# Discrete data (Count)

- Number of items/people in a specific situation
- Ranges from 0 upwards (no negative or partial numbers)
- Examples:
  - Number of articles published by librarians in the last 5 years
  - Attendance at individual workshops on using citation software over a 10 year period

# Continuous data (measurement)

- Can (theoretically) take on any value in a given range
- The same differences between two values mean the same thing
  - My 5km commute is 3km more than John's 2km commute
  - Lilian's 4.5km commute is 3km more than Dan's 1.5km commute
  - That 3km difference is the same amount of distance
- Depending on what you're measuring, can compare as a ratio
  - Can you say that Lilian's commute is 3 times as long as Dan's commute?
  - Can you say that the temperature of 40 °C is twice as hot as 20 °C?
- Examples:
  - Test score from 0 to 100
  - Temperature in Fahrenheit
  - Commute distance to work in km