

Quiz Tues March 5 Section 3.2
Tues March 12 Section 3.3

Test

Wed March 13

3.1-3.3, 4.1-4.3, 5.1

Statistics Suggested HW Problems
are on website.

Ch 1-4 Math

Ch 5-10 Statistics

5.1 Variables and Data

Statistics: The study of data description
and analysis.

Population: The entire set of measurements
of interest.

e.g.. salaries of all Canadians

Sample: A subset of the population

e.g. salaries of 1,000 Canadians

It would be impractical to measure
all salaries.

Must ensure that the sample is representative (sample looks like population).

Variable: A characteristic that changes over time or from object to object.

Experimental Unit: Object on which the variable is measured.

Ex:

Student	Height (m)
Alice	1.51
Bill	1.83
⋮	⋮

Experimental Unit: Student
Variable(s): Height

Ex: Temperature of a coffee over time.

Time	Temp (°C)
1:52pm	89
1:54pm	85
⋮	⋮

Experimental Unit: Coffee
Variable(s): Time, Temp.

Ex: Cars in Parking Lot 3

Make	Model	Year
Toyota	Corolla	2007
Honda	Civic	2012

Experimental Unit: Car

Variable(s): Make, Model, Year

Univariate Data has 1 variable

Height
:

Bivariate Data " 2 variables

Time | Temp
:

Multivariate Data " more than 2 variables

Make	Model	Year

Quantitative Variable: The measurement is a quantity.

e.g. height
number of students in class

Qualitative Variable: The measurement is not a quantity.

e.g. make of a car
favourite season

Quantitative variables have 2 types:
discrete
or continuous

Discrete Variable: Can only have a countable number of values
(gaps between possible values)

e.g. Number of students in a class
0, 1, 2, 3, ...

Shoe size

..., 6.5, 7, 7.5, 8, ...

Continuous Variable: Can have infinitely-many decimal places.

e.g. Temperature could be $89.12673\dots^{\circ}\text{C}$

Height
Mass

Time to Click Mouse

0.12378... seconds

SUBTLE

If a variable is rounded then the measurements are discrete.

Mass of an apple (to nearest 0.1 kg):
2.7, 0.8, 1.3, ...

Variable

Quantitative Qualitative

Discrete Continuous