

M339D: January 23<sup>rd</sup>, 2023.

Theoretical

$X$

$\mathbb{E}[X]$

$$\text{Var}[X] := \mathbb{E}[(X - \mathbb{E}[X])^2]$$

$$\text{SD}[X] = \sqrt{\text{Var}[X]}$$

Empirical ( $\mathbb{R}$ )

'R'

$x_1, x_2, \dots, x_n$

$$\bar{x} := \frac{x_1 + x_2 + \dots + x_n}{n}$$

`mean(.)`

$$s^2 := \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

`var(.)`

$$s := \sqrt{s^2}$$

`sd(.)`