

Lecture 3

Review of Elementary Statistics

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How would you summarize a set of data?

- ▶ List the values
- ▶ Refer to a known distribution

Distribution (put loosely):

A mathematical rule that describes the relative frequency of different events.

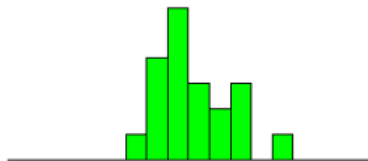
(e.g., normal, uniform, Bernoulli, binomial, Poisson, etc.)

- ▶ The following is a probability density function (pdf) of a random variable Y that is normally distributed with mean μ and variance σ^2 .

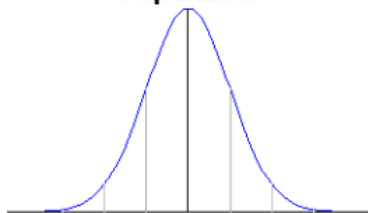
$$Y = \frac{1}{\sqrt{2\pi\sigma^2}} \exp \left[-\frac{1}{2} \frac{(X - \mu)^2}{\sigma^2} \right]$$

Slide with Bullets

Sample



Population



Slide with R Output

```
summary(cars)
```

##	speed	dist
##	Min. : 4.0	Min. : 2.00
##	1st Qu.:12.0	1st Qu.: 26.00
##	Median :15.0	Median : 36.00
##	Mean :15.4	Mean : 42.98
##	3rd Qu.:19.0	3rd Qu.: 56.00
##	Max. :25.0	Max. :120.00

Slide with Plot

