Regression – Brief Review

• Are 2 or more variables related to one another?
• Does observing 1 variable (x) help us to predict another variable (y)?

EX: Response (y): **Quantity Sold**
    … Predictors (x): Price, Quality, Ads, …

EX: Response (y): **House Price**
    … Predictors (x): Size, Location, Age, …
Regression: Most Basic Case

- Simple Linear Regression: \( \hat{y} = a + bx \)
- Only 1 predictor (x) variable
  - vs. multiple regression
- Linear relationship
  - vs. quadratic, exponential, log, etc.
- If x = time, we call it “trend projection”
How to find a good line?

1. By Eye: Graph points on a scatter plot & draw a line that passes through them.

2. Least Squares Regression (LSR) Method:
   - Built into your calculator & Excel; Popular.
   - It finds the line that minimizes the squared vertical gaps between the actual y values & the regression line: Minimize $\sum (y_i - \hat{y}_i)^2$

• In Excel: Tools > Data Analysis > Regression…