

# Introduction to Statistical Programming

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# Outline

Introduction to Data Analysis

Data Transformation

Regression Models

Linear Regression

# Simple Regression

Univariate linear regression model

$$\hat{y}_i = \beta_0 + \beta_1 x_i$$

- ▶ Analogous to a straight line  $y = mx + c$
- ▶ Can be chained with  $M$  dependent variables

$$\hat{y}_i = \beta_0 + \sum_{m=1}^M \beta_m x_{m,i}$$

- ▶ Residual term defined as  $\epsilon_i = y_i - \hat{y}_i$