W37 + Part D)

Our assumptions:

$f(x)$ => continous function with error ϵ

which is like $\epsilon \sim N(0, \sigma^2)$

These describe our data like

$y = f(x) + \epsilon$

y is approximated like $\tilde{y} = X\beta$ (Design matrix.)

Show expectation value for y for given element i:

We have our linear regression model:

$y = X\beta + \epsilon$

y = model-output

X = design matrix

β = Vector of regression coefficients

ϵ = error.

For a given observation i, we know that element y_i is:

$$y_i = \sum_j x_{ij}\beta_j + \epsilon$$

x_{ij} is the jth predictor for the i-th observation.