

# Lecture 10: Experimental Data

## 1. Least Square Objective Function

$$\sum_{i=0}^{\text{len}(\text{observed})-1} (\text{observed}[i] - \text{predicted}[i])^2$$

// minimize the errors

// Use linear regression to find a polynomial

`pylab.polyfit(obx, oby, n)`

`n` is the degree of the polynomial

## 2. An absolute goodness of fit: $R^2$ coefficient of determination

$$R^2 = 1 - \frac{\sum_i (y_i - p_i)^2}{\sum_i (y_i - \mu)^2}$$

$R^2$  intends to capture the proportion of variability in a data set that is accounted for by the statistical model.

always btw 0 and 1. If  $R^2 = 1$ , the model explains all the variability in the data.