* OLS (ordinary least squares is the most general method used for
  + It is used for two dimensional datasets
* Sampling distributions are import because they inform the researcher
* The OLS Coefficient is calculated by
* \*I think that means that is the least squares estimators \*
  + The goal of is to minimize the squared residuals of the model
* You can substitute into the formula above
* The model is for a linear regression model and uses as parameters
* The models follows this look
* The least squares estimates are given with these equations
* Then to work out the unbiasedness and variance of
  + You have to use the formula into the formula for and then use the law of expectation
* The law of expectation says that if is a random variable whose expected values is is defined, and is an random variable on the same probability space then
* Here is an example
  + Lets say that two light bulb factors are in the market
  + Factory works around 5,000 hours
  + Factory works around 4,000 hours
  + It is known that Factory supplies 60% of the total bulbs available
  + What is the expected length of time that a purchased bulb will work for
* The expected life of the bulb
* The probability that the purchased bulb came from Factory X,
* The probability that the purchased bulb came from Factory
* The expected lifetime of a bulb manufacture by
* The expected lifetime of a bulb manufacture by
* The purchased light bulb has an expected lifetime of 4,600 hours

Now for the derivation