

Sampling 1

IB HL Stats Option

Sampling from a normal distribution

1. Open up the file '100 Random Samples'. This has been generated from the 2006 results from the UK Census at School website (www.censusatschool.org).

For the purpose of this task we will assume this data to be our POPULATION.

Extract the height column. What sort of distribution would you expect the height of 100 random students to be?

Find the mean (μ) and variance (σ^2) of the heights. Use the *average* and the *var* functions on Excel.

2. Now we are going to take 10 samples of size 2 from the numbers. From each sample find the mean and variance. The table below can then be completed:

Sample	Mean of samples (\bar{x})	Variance of samples (S^2)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Population	$\mu =$	$\sigma^2 =$

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Note to do the sampling you will need to use the analysis toolpak on Excel.

You can use the Excel toolpak to do this:
Ensure that your Data Analysis is selected from the Add-Ins.
Choose Tools → Data Analysis → Sampling

3. Now find the mean of your 10 samples and the variance of your 10 samples. You may need to find the average from all of the students in your class. The bigger number of samples of size 2 the more accurate your result will be.
4. Compare your sample mean with your population mean. Note any results.
5. Compare your sample variance with your population variance. Note any results.