

**ZMATH 2016b.00814**

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**A spreadsheet simulation to teach concepts of sampling distributions and the central limit theorem.**

Spreadsheets Educ. 8, No. 3, 15 p., electronic only (2015).

Summary: This paper presents an interactive spreadsheet simulation model that may be used to help students understand the concept of sampling distributions and the implications of the central limit theorem for sampling distributions. The spreadsheet model simulates an approximation to a sampling distribution by taking 1,000 random samples from a population, calculating the mean of each sample, and then using percentage polygons to display the distribution of the sample means compared to the distribution of the population. A normal probability plot of the sample means is also created as a second tool for understanding the distribution of the sample means. The user may vary the size of the samples taken, and then observe the effects of sample size on the range and shape of the approximated sampling distribution. The spreadsheet model is built without macros or VBA programming, using only standard formulas and tools. The instructor may choose to build the model with students, or simply present it to them and lead them in experimenting with it, depending on the needs of the class.

*Classification:* K60 K70 K90 U70

*Keywords:* statistics; teaching; spreadsheets; computer as educational medium; simulation model; sampling distribution; central limit theorem; concept formation; discovery learning; visualization; patterns; worksheets; simulating multiple samples; confidence intervals

<http://epublications.bond.edu.au/ejsie/vol8/iss3/3/>