

ZMATH 2015d.00855

Caglayan, Gunhan

Sampling with & without replacement: urn problem modeled with GeoGebra.

Spreadsheets Educ. 6, No. 3, 9 p., electronic only (2013).

Summary: Using spreadsheets, students could perform probability experiments, illustrate the outcomes, experience, understand, and represent mathematics with motivation in an inspirational manner. Although GeoGebra Dynamic Software has been mostly used with geometry and algebra explorations, its recently improved statistics feature in Version 4 provides students and teachers with more opportunities for probability and statistics investigations. I present below a lesson outline based on my college teaching experiences from an introductory probability course offered to math and math education majors in their third year. This lesson emphasizes use of spreadsheets to record the outcomes of probability experiments as a method for delivering mathematical ideas, which stands as an effective way of exploring mathematics. These notes support the teaching of sampling with/without replacement in the context of urn problems. The mathematical experience necessitates active participation of the teacher and the students.

Classification: K55 K65 U75

Keywords: university teaching; stochastics; spreadsheets; simulation; urn problems; samples with replacement; samples without replacement; mathematical software; GeoGebra; probability; binomial distribution; graphical representations; hypergeometric distribution; sample space
<http://epublications.bond.edu.au/ejsie/vol6/iss3/3/>