

NAME(S) _____

Virtual Lab Activity: From the Binomial to the Poisson

[The Virtual Laboratory for Probability and Statistics was developed by Dr. Kyle Siegrist at UAH.]

Go to www.math.uah.edu/stat/

Select

- 14. The Poisson Process
- 6. Analogy with Bernoulli Trials

Read the lesson, and turn in:

- 1. Distribution
Mean = _____, SD = _____

Data
Mean = _____, SD = _____

- 2. Note: In the simulation, $\lambda = rt$, where r is the rate of occurrences over t units of time. For example, there could be $r = 5$ customers every $t = 2$ hours. This is equivalent to saying $\lambda = 10$ customers on average per period where a period is 2 hours. The text uses λt instead of rt .

Distribution
Mean = _____, SD = _____

Data
Mean = _____, SD = _____

- 8. With $n = 30$, $p = .1$, and 1000 runs, record
 - a) The actual probability that $P(X \leq 4)$. Use the Distribution values.

 - b) The relative frequency probability. Use the Data values of the simulation.

 - c) The Poisson approximation. Calculate by hand letting $\lambda =$ the mean of the binomial distribution.