

STAT 550, Fall 2009
Homework 7
due Friday November 6

Show all work.

The numbers refers to *Higgins and Keller-McNulty*, if not specified otherwise. Problem 2 uses R.

1. p. 128, 3.5-2 Use Table 3 in Appendix for all parts.

2. We will use the R function `rpois` to generate Poisson random variables. Use the help function for more information.

(a) Generate a sample of size $n = 1000$ from a Poisson distribution with $\mu = 8$. Note that the `rpois` uses the parameter `lambda` instead of μ . Be sure to use the R function `set.seed` so that you can reproduce your results.

(b) Make a histogram of your sample values. There is an R function `hist`.

(c) Use the R function `mean` and `var` to calculate the sample mean and variance. How do these compare to the theoretical mean and variance?

(d) Use your sample from part (a) to estimate the probability of 3.5-2 (a), the probability that there will be no jobs submitted in any one minute. You can do this by counting the number of 0's in your sample and dividing by the sample size. If you have assigned your sample to a variable called `temp`, then you can count the number of 0's and divide by the sample size using

```
> sum(temp==0)/1000
```

How does this compare to your answer in Problem 1 3.5-2 (a)?

Be sure to include your R plots, code (call to functions), and output.