# ECE 341 - Homework #4

Binomial and Uniform Distributions.  Due Monday, May 24th

Please make the subject "ECE 341 HW#4" if submitting homework electronically to Jacob_Glower@yahoo.com (or on blackboard)

## Binomial Distribution

Assume you toss a coin with a probability of a heads being 0.7

$$X(z) = \left( \frac{0.3z+0.7}{z} \right)$$

1)  Determine the probability of tossing 6 heads in 8 tosses

2)  Determine the probability distribution when tossing this same coin 8 times

NOAA has been keeping track of world weather for the past 141 years.  8 of the last 10 years have been the hottest on record.  (the two that were not came in at #11 and #16).

3a)  What is the probability of any given year being one of the 10 hottest on record (i.e. what is p?)

3b)  What is the probability of  8 of the last 10 years being the hottest on record?  (i.e. toss a coin and get 9 heads out of 10 tosses)

## Uniform Distribution

Assume a fair six-sided die:

$$Y(z) = \left( \frac{1}{6} \right) \left( \frac{z^5+z^4+z^3+z^2+z+1}{z^6} \right)$$

4)  Asume you sum five dice (5d6).  Determine the
   - pdf
   - mean, and
   - standard deviation

5)  Asume you sum ten dice (10d6).  Determine the
   - pdf
   - mean, and
   - standard deviation