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* Textbook reference: Probability and Statistical Inference, Volume 2, Second Edition, by J.G. Kalbfleisch
* EL - 510R
* Office Hours
  + Wednesday 1-2pm DTB A425, Friday 1-2pm DTB A425
* Review of STAT 260
  + Uppercase is random variable
    - X,Y,Z
  + Lowercase is values of random variable
    - x,y,z
  + Italics Uppercase is range of values
    - *X,Y,Z*
* Discrete random variables
  + Only finite, countable, values
    - X ~ Binomial (n,p)
      * *X* = {0,1,2,...,n}
    - X ~ Poisson(lambda)
      * *X* = {0,1,2,...,n}
  + Probability mass function, pmf, of X is f(X) = P(X = x)
* Continuous random variables
  + Can take any real value in an interval
* Probability density function of X, pdf, is f(x) = (d/dx)F(x)
  + Given f(x) we can obtain F(x),
    - F(x) = P(X <= x) = integral(-inf, x)(f(x)dx)
    - P(X <= x) ⇔ X is within (-inf, x]
  + If you do the derivative of CDF, you get PDF
  + If you do the integral of PDF, you get CDF
* Expectation of X: E(X) is also called the population mean of X
  + Discrete
* Variance
  + Var(X + Y) = Var(X) + Var(Y) + 2Cov(X,Y)
  + Cov(X,Y) = E(XY) - E(X)E(Y)
* Independent random variables
  + Let f(x,y) be joint pdf of X and Y
  + X and Y are statistically independent if and only if
    - f(x,y) = f1(x)f2(y)
  + Recall: if X, Y are independent, then
    - Cov(X,Y) = 0 and Var(X+Y) = Var(X) + Var(Y)
* Background Material
* 1.1 Distribution Summary
  + Binomial