STAT 305 D Exam 2 Topics

1. Discrete random variables (Ch. 5.1)
   a. probability mass functions (pmf)
   b. cumulative distribution functions (cdf)
   c. expected value, variance, and standard deviation
   d. special discrete random variables:
      i. Binomial(n, p)
      ii. Geometric(p)
      iii. Poisson(λ)
2. Continuous random variables (Ch. 5.2)
   a. probability density functions (pdf)
   b. cumulative distribution functions (cdf)
   c. quantiles
   d. expected value, variance, and standard deviation
   e. special continuous random variables:
      i. Exponential(α)
      ii. Normal(μ, σ^2)
      iii. t_ν (Student t distribution)
      iv. χ^2_ν (Chisquare distribution)
      v. F_{ν_1,ν_2}, (F distribution)
3. Joint distributions and independence (Ch. 5.4)
   a. Joint distributions (continuous and discrete random variables)
   b. Marginal distributions (continuous and discrete random variables)
   c. Conditional distributions (continuous and discrete random variables)
   d. Independence (continuous and discrete random variables)
4. Functions of several random variables (Ch. 5.5)
   a. Distributions of functions of random variables.
   b. Error propagation formulas for approximating the mean and variance of a function of random variables.
   c. Expectations and variances of linear combinations.
   d. The Central Limit Theorem