Statistics 6501: Final Review

- Review material for before the Midterm.
- Order Statistics
- Multivariate Normal
- Prediction and M.S.E.
- Chebychev's Inequality
- Markov's Inequality
- M.G.F.'s
- δ-method: If $X \sim (\mu, \sigma^2)$, then we can approximate the mean and variance of $Y = g(X)$ using the first order Taylor Approximation as $Y = g(X) \approx g(\mu_X) + (X - \mu_X) g'(\mu_X)$ and $\mu_Y \approx g(\mu_X)$, $\sigma_Y{}^2 \approx \sigma_Y{}^2 [g(\mu_X)]^2$.
- Convergence in Probability: Know how to prove the W.L.L.N.
- Monte Carlo Integration
- Convergence in Distribution, limiting distribution, degenerate distribution.
- Review the theorems related to modes of convergence.
- Review the use of Slutsky's Theorems to show convergence.
- C.L.T.
- Variance Stabilizing Transformations
- Derived Distributions
- When are $\overline{X}$ and S^2 independent?
- Be able to prove Theorem B, page 197.
- Population Parameter, Sample Statistic, Simple Random Sampling, f.p.c., Sampling Distribution, Unbiased, Standard Error, Confidence Interval
- Parameter Estimation: M.M.E. and M.L.E.
- Invariance
- Any problems related to the large sample properties of M.L.E.'s will be collected next quarter.