APMA 1650 Midterm 2 Checklist

Here is a checklist of topics to help you review for the second midterm. It is meant to serve as a guide to help with studying for the exam.

Continuous Random variables and distributions

1. Probability density function, cumulative distribution functions. Know the properties and how to relate them.

2. Expected value and variance. Properties and how to calculate.

3. Uniform distribution, exponential distribution, normal distribution.

4. Distribution method. How does a distribution change when manipulating a random variable?

Central limit theorem

1. Central limit theorem. How to apply it. Applications to sampling and repeated measurements.

2. Normal approximation to the Binomial.

Multivariate Distributions

1. Multivariate distributions, densities and cdfs, how to compute probabilities and integrate over regions.

2. Marginals, conditional distributions, independent random variables

3. Covariance and correlation. Relation to independence. Can a two random variables have no correlation, but be dependent?

4. Conditional expectation and conditional variance. How to use them to compute unconditional variance and expectation.