L03 Advanced Probability and Linear Algebra

- Objectives

Our learning objective is to refresh some essential concepts from Statistics, Linear Algebra, Calculus and Probability using R. Empirical not theoretical.

Linear Algebra

- Matrix: positive definite, semi-positive, rectangular,square, Identity, diagonal
- Multiplication,determinant,Inverse, transpose, Decomposition, cholesky,eigen,svd
- Vector, dot product, cross product,length Calculus:derivative,partial derivative, integration,log,min,max Statistics
- Sample (statistic)mean,variance,Sampling distribution of Sample statistic
- Population(parameters)
- Accuracy, precision, bias
- CLT Central Limit Theorem, LLN Law of Large Numbers
- Probability:probablity distribution of discrete/continuous variables,pmf,pdf,cdf.
- Joint/Conditional/Independent events, their probabilities and Bayes Theorem.

Lecture Notes:L03-Stats and Math you need

Reading Materials and Resources
Review Questions and Practice Problems
<Please source this from any basic text or from the internet>

What is SIZE Effect?

What is Power of a Test?