Methods of Data Analysis – STA302 Course Notes

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1   May 7th - Lecture 1

Definition 1 - Statistical Analysis   Data Analysis that relies on Probability theory to account for the variability of the data.

Permutation Test   Insert random premise, observe two samples Group A and Group B.
If the groups have no effect, all of the permutations are equally likely.
We can plot the Permutation Distribution with respect to difference between sample means.

Characteristics of Permutation Test

1. Involves simple probability theory

2. distribution-free

3. listing all the permutation for large dataset is almost impossible

Definition 2 - Statistical Significance   We say a difference is **statistically significant** if it's less probable than our pre-determined significance level. (when p-value $p <$ significance level α)

Definition 3 - Significant Effect   We say the groups have a **significant effect** if it causes the variable of interest to be significantly different.

2   May 9th - Lecture 2