

## Goodness of Fit Theory

- Concepts for Chi Square Tests
  - The properties of a Chi-Square distribution:
    - It is \_\_\_\_\_ and therefore, \_\_\_\_\_
    - The degrees of freedom vary depending on type of test:
      - One-way Goodness of fit: \_\_\_\_\_
      - Two-way: \_\_\_\_\_
        - For Independence and Homogeneity
      - The mean of this distribution also equals the degrees of freedom
  - The \_\_\_\_\_ counts (\_\_\_\_) are the number of observations that fall into each category while the \_\_\_\_\_ counts (\_\_\_\_) are the number of observations we think will fall into each category.
  - Sample size is large when \_\_\_\_\_
- Goodness of Fit Testing:
  - When we have known/old data that we are testing against with \_\_\_\_\_
  - You should be given:
    - \_\_\_\_ – number of categories
    - A \_\_\_\_\_ for each category
    - A large sample size
    - Level of significance
    - The observed counts from the experiment
  - The hypotheses statements:
    - Null
    - Alternative
  - Formulas

- Expected counts
- Degrees of freedom
- Test Statistic
- P-value
- Making a Decision
  - Rejecting ( )
  - Failing to reject ( )
- Interpretation
  - Rejecting
  - Failing to Reject
- Calculator Trick ( $\chi^2$  GOF-Test)
  - How to get to the function
  - What you need
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  - What you will get (that is relevant)

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