ANOVA

- ANOVA
  - compare means of two or more groups
  - factors (variables)
    - ex. dosage
  - levels
    - ex. *mg* of dosage
- Types of ANOVA
  - One way ANOVA
    - one factor with at least two levels, levels are independent
  - Repeated-Measures ANOVA
    - one factor with at least two levels, levels are dependent
    - notes on Independent and Dependent Samples
  - Factorial ANOVA
    - two or more factors (each of which with at least two levels), levels can be either independently dependent, or both (mixed)
- Assumptions in ANOVA
  1. Normality of Sampling Distribution of Means
     - The distribution of sample means is normally distributed.
  2. Independence of Errors
     - Errors between cases are independent of one another.
  3. Absence of Outliers
     - Outlying scores have been removed from the data set.
  4. Homoegeneity of Variance
     - Population variances in different levels of each independent variable are equal.
- Hypotheses in ANOVA
  - ANOVA with one factor ("A", three levels):
    - ka

Independent and Dependent Variables

- Variable: property that can take on many values
  - in a situation with multiple variables:
    - **independent variable**: any variable that is being manipulated
    - **dependent variable**: any variable that is being measured

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Independent and Dependent Samples

- One-Sample and Two-Sample Methods
  - 1-sample
    - one sample compared to population
  - 2-sample
    - samples are being compared to other samples
- Independent and dependent samples
  - samples are *independent* if members of one sample are *unrelated* to members of the other sample
  - samples are *dependent* if members of one sample are *related* to members of the other sample

- examples:
  - before and after <- dependent
  - two different test subjects from two different groups <- independent