INFERENCE CONDITIONS

You must demonstrate (or assume if necessary) that the following conditions are met before performing a hypothesis test or constructing a confidence interval:

$\mathbf{MEANS}\left(t\right)$		
	1. Random sample or randomized experiment	
	2. ONE of the following:	
	a) population is normally distributed	
One Sample	b) sample size is <i>large</i> for CLT	
	c) sample data shows evidence of normality with no outliers (boxplot, normal probability plot)	
	3. Independent $(N > 10n)$	
	I will use t procedures for population means with n-1 degrees of freedom	
Within Subjects/Matched-Pairs	Intercent of the second seco	
	2. Conditions 1-3 above apply to list of differences	
(One list of differences is created		
from 2 matched lists)) I will use t procedures for matched pairs with n – 1 degrees of freedom	
	1. The samples are independent	
Two Independent Samples	2. Conditions 1-3 above apply to both samples	
	I will use t procedures for the difference of means using $n - 1$ degrees of freedom for the smallest sample size	

PROPORTIONS (z)		
One Sample	 Random sample or randomized experiment np₀ ≥ 10 and n(1-p₀) ≥ 10 for hypothesis tests; np̂ ≥ 10 and n(1-p̂) ≥ 10 for confidence intervals N > 10n I will use z procedures for a population proportion 	
Two Independent Samples	1. Random samples or randomized experiment 2. $n_1 \hat{p}_1 \ge 10$, $n_1 (1 - \hat{p}_1) \ge 10$ and $n_2 \hat{p}_2 \ge 10$, $n_2 (1 - \hat{p}_2) \ge 10$	

CATEGORICAL DATA/2-WAY TABLES (χ^2)	SLOPE (<i>t</i>)
1. Random sample(s) or randomized experiment	1. Random sample or randomized experiment
2. Data in counts where all expected counts are ≥ 5	2. Evidence of a linear association with no pattern in residual plot
	3. Errors (residuals) are normally distributed (boxplot, normal probability plot)
I will use Chi-square procedures for Goodness of Fit (1 sample, 1 variable),	\dots I will use t procedures for the slope of the regression line with $n - 2$ degrees of
Association (1 sample, 2 variables) or Homogeneity (2 samples, 2 variables)	freedom where $n = number$ of (x, y) pairs