

Chapter 10:

ANOVA:

One-Way ANOVA:

I. Hypotheses:

$$H_0: \mu_1 = \mu_2 = \cdots = \mu_I$$

H_a : at least one μ_i is different

II. Test Statistic:

$$f = \frac{MST_r}{MSE}$$

Source of Variation	df	SS	MS	f
Treatments	I-1	$\frac{1}{J} \sum_{i=1}^I x_{i.}^2 - \frac{x_{..}^2}{IJ}$	$MST_r = \frac{SST_r}{I-1}$	$\frac{MST_r}{MSE}$
Error	I(J-1)	$SST - SST_r$	$MSE = \frac{SSE}{I(J-1)}$	
Total	IJ-1	$\sum_{i=1}^I \sum_{j=1}^J x_{ij}^2 - \frac{x_{..}^2}{IJ}$		

III. Rejection Region:

Reject H_0 if:

$$f > f_{\alpha, I-1, I(J-1)}$$