STAT 509 - Test 2 Formula Sheet

$$\bar{y} \pm t_{\frac{\alpha}{2}, n-1}\left(\frac{s}{\sqrt{n}}\right) \qquad n = \frac{\left(z_{\alpha/2}\right)^2 \sigma^2}{B^2}$$

$$t = \frac{\bar{y} - \mu_0}{s/\sqrt{n}} \qquad \hat{p} \pm z_{\alpha/2}\sqrt{\frac{\hat{p}\hat{q}}{n}}$$

$$z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0 q_0}{n}}} \qquad \left(\frac{(n-1)s^2}{\chi^2_{\alpha/2, n-1}}, \frac{(n-1)s^2}{\chi^2_{1-\alpha/2, n-1}}\right)$$

$$\chi^2 = \frac{(n-1)s^2}{\sigma_0^2} \qquad \bar{d} \pm t_{\alpha/2, n_d - 1}\left(\frac{s_d}{\sqrt{n_d}}\right) \qquad t = \frac{\bar{d} - \delta_0}{s_d/\sqrt{n_d}}$$

$$s_p^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1 + n_2 - 2} \qquad t = \frac{\bar{y}_1 - \bar{y}_2}{\sqrt{\frac{s_p^2}{n_1} + \frac{s_p^2}{n_2}}}$$

$$(\bar{y}_1 - \bar{y}_2) \pm t_{\alpha/2, n_1+n_2-2}\sqrt{\frac{s_p^2}{n_1} + \frac{s_p^2}{n_2}}$$

$$(\hat{p}_1 - \hat{p}_2) \pm z_{\alpha/2}\sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}$$

$$z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}\hat{q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \qquad SST = \sum_{i=1}^{k} n_i(\bar{y}_i - \bar{y})^2$$

$$SSE = \sum_{i=1}^{k}(n_i - 1)s_i^2$$

$$MST = \frac{SST}{k-1} \qquad MSE = \frac{SSE}{n-k}$$