STA 6126: Formulas – Exam 2

$$t = \frac{\overline{y}-\mu_0}{se}, \quad df = n-1 \qquad se = \frac{s}{\sqrt{n}} \qquad s = \sqrt{\frac{\sum(y-\overline{y})^2}{n-1}}$$

$$z = \frac{\hat{\pi}-\pi_0}{se_0}, \qquad se_0 = \sqrt{\frac{\pi_0(1-\pi_0)}{n}}$$

$$(\hat{\pi}_2 - \hat{\pi}_1) \pm z(se), \quad se = \sqrt{\frac{\hat{\pi}_1(1-\hat{\pi}_1)}{n_1} + \frac{\hat{\pi}_2(1-\hat{\pi}_2)}{n_2}}$$

$$t = (\overline{y}_2 - \overline{y}_1)/se, \quad (\overline{y}_2 - \overline{y}_1) \pm t(se), \quad se = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$\chi^2 = \sum \frac{(f_0 - f_e)^2}{f_e}, \quad df = (r-1)(c-1), \quad f_e = (\text{row total})(\text{col. total})/n$$

$$\text{Standardized residual } = \frac{f_o - f_e}{\sqrt{f_e(1-\text{row proportion})(1-\text{column proportion})}}$$

Bivariate regression models

$$E(Y) = \alpha + \beta x \qquad \hat{y} = a + bx \qquad r = b(s_X/s_Y) \qquad r^2 = (TSS - SSE)/(TSS)$$

Estimated conditional standard deviation $\quad s = \sqrt{SSE/(n-2)}$