STAT 2220 Final Exam Formula Sheet

$$s^2 = \frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1} \qquad\qquad r = \frac{1}{(n-1)s_x s_y}\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})$$

$$b_1 = r\frac{s_y}{s_x} \qquad\qquad b_0 = \bar{y} - b_1\bar{x} \qquad\qquad P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$P(X = x) = \binom{n}{x}p^x(1-p)^{n-x} \qquad\qquad P(X = x) = (1-p)^{x-1}p$$

$$P(X = x) = \binom{x-1}{r-1}(1-p)^{x-r}p^r \qquad\qquad P(X = x) = \frac{\binom{r}{x}\binom{N-r}{n-x}}{\binom{N}{n}}$$

$$P(X = x) = \frac{\lambda^x e^{-\lambda}}{x!} \qquad\qquad f(x) = \frac{1}{b-a} \qquad\qquad f(x) = \lambda e^{-\lambda x}$$

$$Z = \frac{X - \mu}{\sigma} \qquad\qquad Z = \frac{\bar{X} - \mu}{\sigma/\sqrt{n}}$$

$$\bar{x} \pm z*\frac{\sigma}{\sqrt{n}} \qquad\qquad n = \left(\frac{z*\sigma}{m}\right)^2 \qquad\qquad Z = \frac{\bar{X} - \mu_0}{\sigma/\sqrt{n}}$$

$$\bar{x} \pm t*\frac{s}{\sqrt{n}} \qquad\qquad t = \frac{\bar{X} - \mu_0}{s/\sqrt{n}}$$