

Formula Sheet – Test 1 – STAT 515 – Spring 2018

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$P(A | B) = \frac{P(A \cap B)}{P(B)} \quad \text{or} \quad P(B | A) = \frac{P(A \cap B)}{P(A)}$$

$$P(A \cap B) = P(B) P(A | B) \quad \text{or} \quad P(A \cap B) = P(A) P(B | A)$$

$$P(B | A) = \frac{P(A | B) P(B)}{P(A | B) P(B) + P(A | B^c) P(B^c)}$$

$$P(B_i | A) = \frac{P(A | B_i) P(B_i)}{P(A | B_1) P(B_1) + \dots + P(A | B_k) P(B_k)}$$

$$\mu = \sum xP(x)$$

$$\sigma^2 = [\sum x^2 P(x)] - \mu^2$$

$$P(x) = \frac{n!}{x!(n-x)!} p^x q^{n-x}$$

$$P(x) = \frac{\lambda^x e^{-\lambda}}{x!}$$

$$P(x) = \frac{\binom{r}{x} \binom{N-r}{n-x}}{\binom{N}{n}}$$