**Exam 2 Topics**

**Probability: Chapter 4 Sections 1-3.**

Sample Space P(E) = =

Complement of an Event: P() = 1 – P(E)

Addition Rule: If A and B are Mutually Exclusive Events: P ( A or B ) = P(A) + P(B)

If A and B are NOT Mutually Exclusive Events: P ( A or B ) = P(A) + P(B) – P( A and B )

Multiplication Rule: If A and B are Independent Events: P ( A and B ) = P(A) ∙ P(B)

If A and B are NOT Independent Events (Conditional Probability): P ( A and B ) = P(A) ∙ P(B|A)

**Counting: Chapter 4 Sections 4-5.**

The Fundamental Counting Rule (a.k.a. “The menu problem”) N = k1 ∙ k2 ∙ k3 ∙….∙ kn

Permutations: nPr  =

Combinations: nCr  =

**Discrete Probability Distributions: Chapter 5 Section 1.**

Random Variable X, X = 0, 1, 2, 3….

P(X)

**The Binomial Distribution: Chapter 5 Section 3.**

properties, notation, when to use it?

Formula: nCx  ∙ px ∙ q(n-x)