**Probability and Applied Statistics Formula Sheet**

Mean:

* Population Mean: μ

Variance:

* Population Variance:

Standard Deviation:

* Population Standard Deviation: σ =

Permutation Equation:

Combination Equation:

Conditional Probability:

Independence/Dependence:

Events A and B are independent if:

OR

Otherwise, events are dependent

If events are dependent,

If events are independent,

If events are mutually exclusive,

AND

Otherwise,

Complement:

Theorem of Total Probability:

Bayes’ Rule:

When Y is a discrete random variable,

Expected Value:

Variance:

Standard Deviation:

Binomial Distributions:

Expected Value:

Variance: .

Standard Deviation:

Geometric Distributions:

Expected Value:

Variance:

Standard Deviation: