

*Montgomery College - Department of Mathematics
Rockville Campus*

**MA113 – Introduction to Probability
3 Semester Hours**

Description An introduction to probability including basic probability permutations and combinations, expectation and applications of the normal distribution. Related topics in set theory, statistics, and logic may also be covered.

MA113 meets 3 hours each week.

Prerequisites A grade of C or better in MA 101 or MA 103, appropriate score on mathematics assessment test, or consent of department.

Assessment levels: EN 101/101A, RD 120.

Topics

- I. Set theory
 1. Union
 2. Intersection
 3. Empty Set
 4. Venn Diagrams
- II. Counting
 1. Tree Diagrams
 2. Multiplication principle
 3. Permutations
 4. Combinations
- III. Basic Probability
 1. Frequency Interpretation
 2. Events
 3. Sample Spaces
 4. Mutually Exclusive Events
 5. Fundamental Probability Axioms
- IV. Conditional Probability
 1. Independence and dependence
 2. Bayes' Theorem
- V. Probability distributions
 1. Binomial
 2. Multinomial
 3. Geometric
 4. Hypergeometric
- VI. Basic Statistics
 1. Expected value
 2. Normal distribution

3. Standard deviation

Text

Elementary Probability with Applications. Larry Rabinowitz, A K Peters publisher, 2005.